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MOTOR WORLD

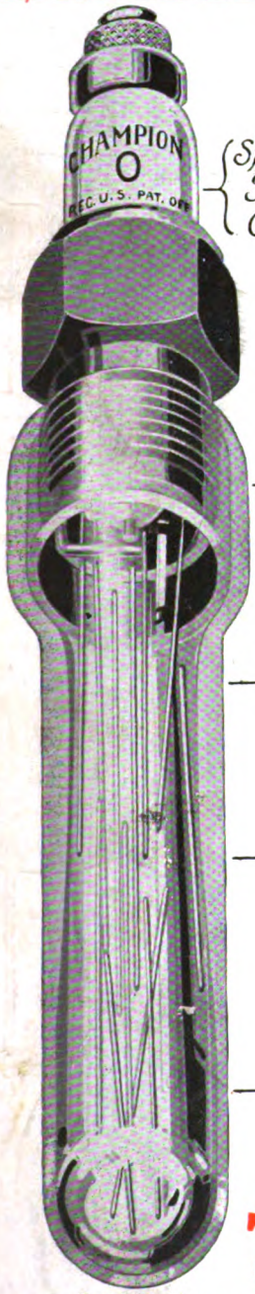
for

DEALERS, JOBBERS AND GARAGEMEN

Volume L
No. 8

New York, February 21, 1917

Ten cents a copy
Two dollars a year



Patent Pending
Reg. U. S. Pat. Office.

PRICE
75c

Clean Your Plugs This Easy Way

Fill the tube half full of gasoline — screw the plug into the bushing at the end—then shake.

That's all you have to do to clean your plugs when you use the

CHAMPION "MINUTE" SPARK PLUG CLEANER

In a minute or two you can clean a whole set.

Think what an improvement over the dirty, grimy task it used to be!

You don't even have to take the plugs apart.

The needles in the tube pick the carbon off the porcelain and the gasoline dissolves the oil.

The Champion "Minute" Cleaner saves a whole lot of time, temper and trouble.

It's a worry-less, work-less way of cleaning your plugs.

You want a Champion "Minute" Cleaner. Get one now.

It comes packed in a wooden carrying case.

For sale by your jobber or dealer. If not, please write to us.

Champion Spark Plug Company
900 Upton Avenue Toledo, Ohio
Manufacturers of Champion Toledo Spark Plugs

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Advertisers' Index—Next to Last P

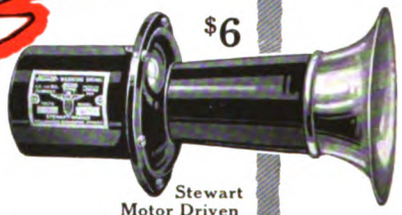
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Stewart PRODUCTS

PRESTIGE
QUALITY
SERVICE
SATISFACTION
MADE IN USA



$3.50
Stewart
Hand Operated
Warning Signal



$6
Stewart
Motor Driven
Warning Signals



$1
Stewart V-Ray
Spark Plug



$10
Stewart
Vacuum System



$10
Stewart Speedometer
for Fords



$25
Stewart
Speedometer

There is Money in Accessories

Put your accessory business on a big paying basis. You can easily do it. Make your accessory department the most profitable by handling only standard accessories of known value, accessories that virtually sell themselves.

Stock up with Stewart Products. They are best known, most advertised and easiest to sell.

As a Stewart dealer, you tie to Stewart success and Stewart advertising—both the biggest in the accessory field. You get added prestige and an accessory business that's decidedly worth while.

And remember, Stewart Products make the hardest competition.

Take the Stewart Tire Pump for instance. It is standard equipment on many of the best cars. It is the one tire pump recognized by the motor car industry. Consequently, it is the easiest to sell—and hardest to compete with.

The same is true of the Stewart Warning Signals, Stewart Vacuum System, Stewart Speedometer, V-Ray Spark Plug—and all other Stewart Products, including the famous combination Stewart Speedometer and Instrument Board for Fords, selling for $11.25.

Don't waste your time, money and efforts trying to sell unknown, unadvertised accessories.

"It will pay you to see that every car is Stewart equipped."

Stewart-Warner
Speedometer Corporation
Chicago, U. S. A.



$12
Stewart
Tire Pump

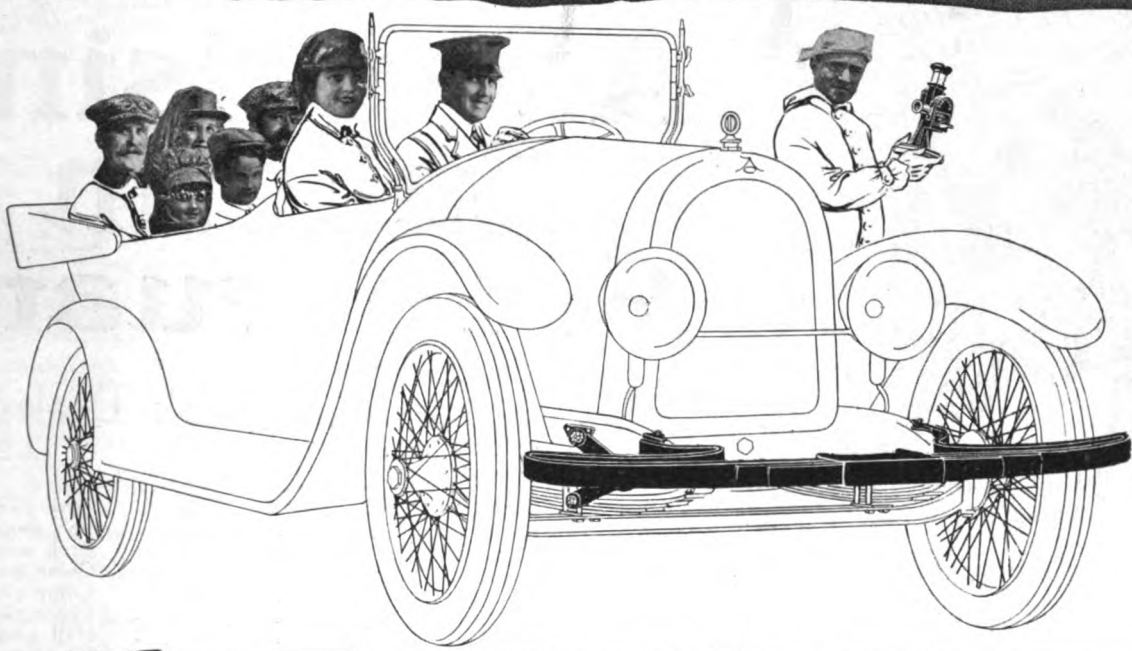


Warner
Auto-Meter
$50

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INTRODUCING

The Ryders, their Chauffeur and the Racing Driver:

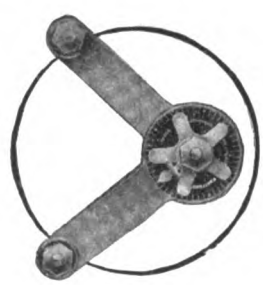


Over 30 Millions of Readers

will follow the experiences of these advertising characters, truly representative of the 400,000 and more users of the

*Hartford

SHOCK ABSORBER



Makes Every Road a Boulevard

Each will tell a story of exceeding importance to all who sell or own automobiles. Watch this publication.

Learn from the Ryders, their Chauffeur and the Racing Driver what the famous pioneer shock absorber is doing for hundreds of thousands of well-pleased users.

All, who use it, like the Hartford Shock Absorber, as you will when you have tried it—and this you can do, assured by our time-honored guarantee of **Satisfaction or Money Back.**

EDWARD V. HARTFORD, Inc.

Heretofore Known as Hartford Suspension Co., 142 Morgan St., Jersey City, N. J.

Makers of the Hartford Shock Absorber, E. V. Hartford
Electric Brake, Hartford Auto Jack, Hartford Bump Absorber
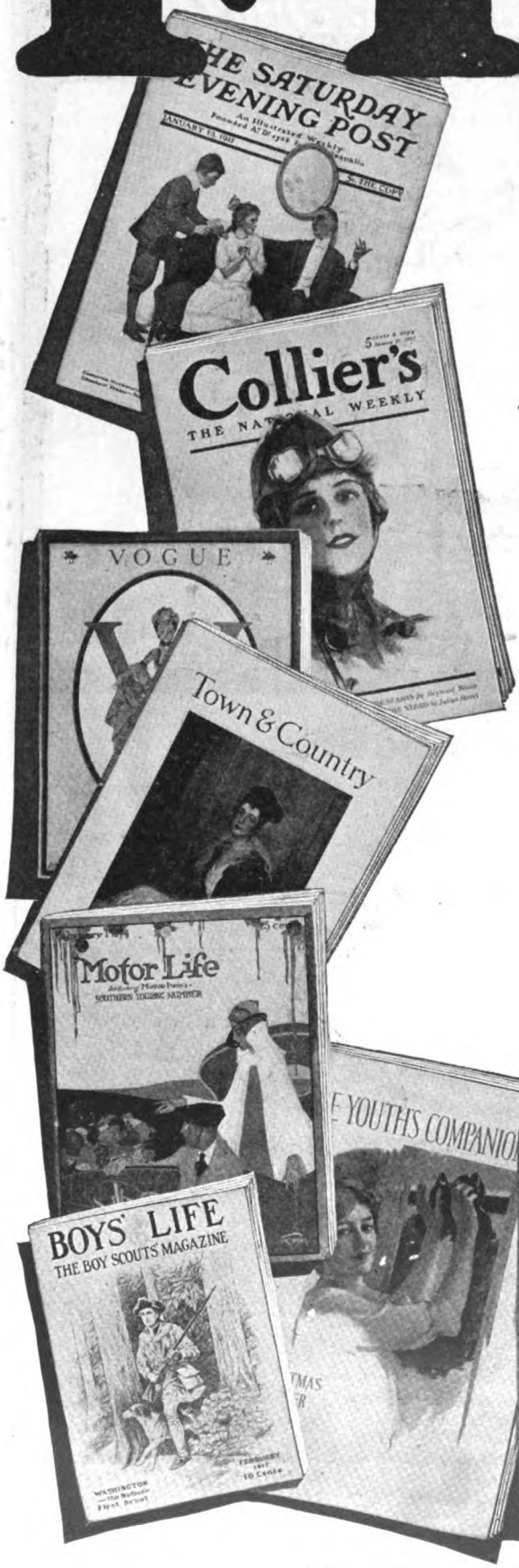
Branches: New York, 1846 Broadway and Service Station, 1926 Broadway; Boston, 319-325 Columbus Avenue; Chicago, 2637 Michigan Avenue

Distributors in principal cities. Dealers everywhere.

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FISK

Advertising Bulletin for February



How we are helping Fisk Dealers this month:

SATURDAY EVENING POST	Two pages
COLLIER'S	One page
MOTOR LIFE	Back cover
TOWN AND COUNTRY	Color page
VOGUE	Color page
BOYS' LIFE	Color page
YOUTH'S COMPANION	Half page
FLORIDA GROWER	Back cover
HOARD'S DAIRYMAN	Back cover
SOUTHERN RURALIST	Back cover

Are you getting the benefit of this advertising —and what is to follow throughout the year?

Write Dept. 23 for full details of Fisk Dealers' proposition

THE FISK RUBBER COMPANY
of N. Y.
Chicopee Falls, Mass.

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY

The Class Journal Co.
231-241 West 39th Street, New York City
Horace M. Swetland, President
W. I. Ralph, Vice-President E. M. Corey, Treasurer
A. B. Swetland, General Manager

Business Department
CHARLES B. SHANKS, Manager

Editorial Department
David Beecroft, Managing Editor
S. P. McMinn Ray. W. Sherman
H. F. Blanchard S. T. Williams

Branch Offices
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6960
Detroit—95 Fort Street, West, Phone Main 1851
Cleveland—516-517 Swetland Bldg., Phone Prospect 167

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Postage Stamps will be accepted in payment for subscriptions. Checks, Drafts and Money Orders should be made payable to MOTOR WORLD.
The payment of subscriptions will be shown by stamping the date of expiration—the month and year—on the wrapper that carries your paper each week. No other acknowledgment necessary.

Cable Address, "MOTORWORLD," New York
Entered as second-class matter at the New York Post Office, Nov., 1900
Member of the Audit Bureau of Circulations

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The Class Journal Co.

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The South is the Promised Land for the good mechanic. It is rolling in wealth but it has few properly equipped repairshops.

Kansas City's Real Show.....13-16 & 51-53
The dealers profited by the mistakes of last year and have put on a show which is a model of its kind.

Louisville Show a Thoroughbred.....10-12
Like its predecessors, the horse shows, it has class and polish.

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This means quick service and only the dealer or garageman can give it.

He Advertised His Breakfast.....18-19
This is another of the Reilly series—and it gives the remedy.

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How to do two jobs on a Studebaker which probably have been causing you trouble.

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Genuine co-operation is being developed here.

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When Time Counts

The thoroughness of our organization together with the size and facilities of our plant assure prompt delivery of SAE Standard Cap Screws, SAE Semi-Finished Nuts, SAE Castellated Nuts, as well as

CORBIN

Automatic Screw Machine Products

When time is an important factor with you it would be well to remember this fact.

Remember! When placing an order with the Corbin Screw Corporation you are placing it with an organization qualified both by experience and capacity to fill orders in the shortest possible time with products of the highest quality.

We shall be glad to submit quotations and advice on delivery upon receipt of blue prints and specifications.

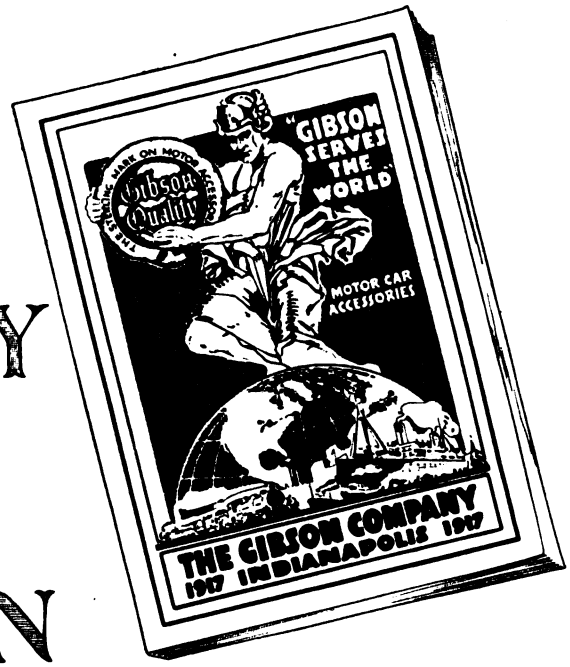
We also manufacture Cap and Set Screws US threads, Machine Screw standard ASME, Machine Screw Nuts, Wood Screws, Stove Bolts, Tire Bolts, Thumb Screws, Thumb Nuts, etc.

THE CORBIN SCREW CORPORATION
The American Hardware Corporation, Successors
NEW BRITAIN, CONN.
BRANCHES: New York Chicago Philadelphia

Makers of Corbin-Brown Speedometers; also makers of Corbin Duplex Coaster Brakes for Bicycles

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READY FOR YOU SOON



THE 1917 Catalog of The Gibson Company will be off the press early in March. We are now completing our mailing list. If you desire a copy of this unusual and valuable book, we suggest that you write to us at once—requesting it. It will be sent, gratis, to legitimate accessory dealers and garage operators—none other.

This book contains approximately 400 pages. It is the most complete and valuable publication of its kind every offered in the accessory and equipment fields. It will serve you well as a buying guide—and give you a great deal of practical information. Write today for your copy. Ask for catalog G-2.

THE GIBSON COMPANY
INDIANAPOLIS

THE STERLING MARK ON MOTOR ACCESSORIES
Gibson Quality

Motor Car Accessories and Tires

Shop Equipment and Electrical Supplies

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. L New York, U. S. A., Wednesday, February 21, 1917 No. 8

LEAKY GASKETS

AN IDEA is no more use than a leaky gasket—unless it is put to work. Merely saying you will do something and then not doing it never got anyone anywhere.

Every day persons in every walk of life see brilliant ideas. They hear them in talking with others; they read them in their daily papers; they come to them out of their thoughts.

The men who succeed are the ones who hurry up quick and put those ideas to work.

Reading, thinking, talking with others, breeds ideas. But these ideas are like a puff of smoke. They disappear over night. They're worthless five minutes after unless some action comes out of them.

The most successful men in the world to-day are the men who act quick, who see an idea, grasp it and put it to work.

Reason it out. What good are ideas unless they are put to work. There can be only one answer. They're not a bit of good.

One of the principal purposes of a business paper such as MOTOR WORLD is to collect ideas and pass them along to its readers. The old saying about leading a horse to water holds good here, too.

MOTOR WORLD can gather together the most brilliant ideas in the motor car world, but it cannot make you put them to work. That part is up to you.

The best business paper in the world will not give you one cent in return unless you put that paper to work. Make it work for you.

the most brilliant ideas in the motor gently. Read them with a pencil and paper at your elbow. Get those ideas down before they escape you. Use the ideas. Use them now.

If you don't put them to work, they're about as useful as a leaky gasket.

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Land O' Promise

The Sunny South Needs *Good* Mechanics

"GO West, young man," said Horace Greeley. But if you read this story, *and understand it,* you won't take Greeley's advice. You'll go South.

What with money pouring in and motor cars rolling in and few garages and shops equipped to take care of them properly, the South today is literally the Promised Land of the motor car mechanic. You simply *must* read this story.

By Clyde Jennings

ST. LOUIS, Jan. 22—The South to-day is the Promised Land of the automobile mechanic, provided he knows his business and is honest.

If the mechanic has a little money or credit, he can go to any one of scores of moderate sized cities in the South and set himself up in business with assurance that he will have more work than he can take care of within a few months.

The money is there for this year and agricultural and business leaders are conducting their own affairs on the theory that nothing within the power of humans can deprive the South of at least two more prosperous years.

If the mechanic is competent but is without money, he can more easily get a good position, with prospect of advancement, in the South than any other section of the country.

If any mechanic doubts this he can confirm it by applying to any wholesale automobile or accessory dealer doing business in the South to-day. They all have openings or inquiries from customers. They all have at their tongue's end names of towns where the need of a well-conducted garage is acute.

This condition does not apply generally to the large cities of the South. Little Rock, New Orleans, Birmingham, Atlanta and others are well served, and they have a fair number of garages and repairshops, many of them competently equipped with men and machinery.

But in the scores of small cities, from 2500 to 25,000 population, on the main traveled highways, the need for repairmen is very great.

The present boom in the South, founded on 20-cent cotton, the high price of citrus fruits and garden truck, is a country and small town boom. The negro tenants on a single plantation have this year bought a dozen automobiles. In and around some villages of less than 1000 inhabitants 40 machines are now owned where one was owned last year.

South Will Double Its Cars

Exact figures on the increased automobile ownership in the South are not obtainable and will not be until the present license year ends. St. Louis dealers who sell in the South say that by the time the present buying rush is over there will be in the South double the number of automobiles that were owned there last July. One man who keeps in touch with the situation from another viewpoint said: "We are sure that there is more than double the number of machines here now than there was a year ago." As to the repairshop situation in Little Rock, conceded to be one of the best equipped towns in the South, he says: "Little Rock has a number of garages and service stations. We think a competent man here would do well."

In Texas, where 90,000 machines were estimated last spring, a farm paper recently undertook an automobile census and with eight counties missing had the number up to 191,000. At that time one dealer in Dallas had 107 unfilled orders on his files and he had a deposit of $100 on each machine.

In Memphis the number of dealers has more than doubled in six months and 12 dealers there are now building specially constructed homes for their business.

In New Orleans the number of lines represented has been multipled by three since last August, and the newest dealers are doing about as much business as the oldest established dealers were doing a year ago. The older houses decline to state increased business in figures because "no one would believe them." Birmingham, Atlanta, Chattanooga and Richmond are on a par with these cities. In Richmond it is said that the automobile business has added $1,000,000 a year to the clearing house totals.

In all of these cities dealer associations have been formed this winter. Atlanta and Richmond are to have shows this winter, and Memphis and New Orleans and Atlanta have completed arrangements for annual fall exhibits at industrial and agricultural fairs.

There is another cause for this increased demand for automobile labor than the mere buying of cars. Throughout the South there is a consistent building of roads, which enables a vast increase in the mileage of all cars.

In the Southwest the Ozard Trails Highway Association, which started under Col. W. H. Harvey's direction as a local benefit for southwestern Missouri and northwestern Missouri, is extending over six States and is making remarkable headway. Similar roadway associations are extending throughout the Southeast. The States are taking up the good roads question honestly and progressively. For instance, Mississippi is building three pikes through the State from north to south and three from east to west. In this State the automobile highway will jump from a few miles of shell roadways in the resort region along the coast to a practically open State for automobiles the year round.

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Usually this sudden burst of prosperity is ascribed to accidental 20-cent cotton and high prices for other products. But the automobile buying power is much more deeply seated.

For 10 years, ever since the boll weevil appeared and endangered all profits in cotton, the United States Department of Agriculture has been doing consistent work in promoting a diversification of crops in the South. During the last few years the States have joined in this work.

Crops Are Diversified

Three years ago many bankers recognized the movement, and since have declined to lend money to any farmer who planted too much of his ground in cotton. The result is that this year cotton formed only one-third of the value of the $3,658,302,000 agricultural products of the South. The figures used are those of the Manufacturers' Record.

This means that where, 10 years ago, the money received would have gone at once for flour, bacon, corn meal and other necessities of life, this year the farmer had enough to live on and his cotton money left. The late Booker T. Washington, of Tuskegee Institute, the negro school, spent the last 3 years of his life preaching to his people, "own a hog—a hog for every member of the family." Many negroes followed this advice and instead of spending their cotton money for bacon this year are buying automobiles.

If further argument is needed, the total of the South's agricultural products this year, including animals, was estimated Dec. 1 by the United States Department of Agriculture as $4,650,000,000, or only 8 per cent less than that for the total of the United States in 1890. The population of the United States in 1890 was 75,900,000. That of the South Dec. 1 was estimated at 35,000,000. That is basis enough for buying automobiles.

Policy Changed in 1915

Everybody knows that 1914 was a lean year in the South. Cotton then sold at 5 cents and the people lived. In that year they were shriven for their past errors and excesses and in 1915 they saw the world differently. They increased their plantings of everything except cotton. They prospered in 1915 to the extent of $300,000,000 more worth of products than in 1914. This year they have profited more in every Southern State as this table, showing the United States Department of Agriculture value of crops (not counting animals) on Dec. 1, will show:

	1916	1914
Alabama ..	$158,469,000	$152,340,000
Arkansas ..	250,511,000	112,168,000
Florida	60,495,000	47,329,000
Georgia ...	348,924,000	198,932,000
Kentucky ..	219,821,000	144,299,000
Louisiana .	182,845,000	104,463,000
Maryland ..	87,001,000	59,574,000
Mississippi..	190,674,000	128,605,000
Missouri ..	260,049,000	227,036,000
N. Carolina.	274,435,000	173,497,000
Oklahoma ..	223,723,000	159,713,000
S. Carolina.	192,468,000	131,653,000
Tennessee ..	220,888,000	138,255,000
Texas	684,851,000	351,628,000
Virginia ...	215,886,000	104,218,000
W. Virginia.	87,262,000	56,430,000
Total ...	$3,658,302,000	$2,290,140,000

As compared with 1914 these crop values for 1916 show a gain of $1,368,162,000.

It is estimated that the amount of money sent north from Louisiana for pure bred dairy cattle, pigs, poultry and horses in 2 years will almost equal that spent this year for pleasure cars.

Also that scores of farmers in the South are buying motor trucks. In fact, some agencies assert their truck sales almost equal that of pleasure cars. Of course these need mechanics.

Has Expanded Industrially

In addition there is the vast increase of industrial wealth. The Birmingham iron district is now taking orders for March, 1918, delivery at unheard of prices. This means that the furnaces are booked for the greatest run they ever have known. This is only one instance of the industrial expansion of the South in 5 years.

For the past 6 months any set of industrial statistics will show that more industrial plants have been opened in the South than any other section of the country, since the East quit building munition plants. Even in the munitions the South had a share. Hopewell, Va., a city of 100,000 now, was built to manufacture powder, but will be continued to make dies and paper from cotton and corn stalks.

The best proof of this prosperity is, of course, the bank clearings. Here are the reports from several Southern cities for the first week of this year, as compared with the first week of the year before:

City	1917	1916
Atlanta	$23,821,000	$22,119,025
Chattanooga ...	3,384,000	2,691,000
Houston	12,541,000	9,637,000
Little Rock	2,878,000	2,466,000
Louisville	20,900,000	17,075,000
Memphis	11,335,000	9,143,000
New Orleans ...	35,259,969	27,173,219
Jackson, Miss...	697,000	538,000
Richmond, Va...	21,842,000	14,583,000

The total for the entire South for that week was $176,877,950, against $152,505,629 the year before.

Just to show that these figures are not by chance for that week alone, these bank clearing figures for December can be quoted from other Southern cities:

City	1917	1916
Augusta	$17,139,000	$10,017,882
Austin	15,916,000	13,258,264
Birmingham ...	16,513,000	13,370,458
Knoxville	11,713,000	8,351,074
Vicksburg	1,697,847	1,540,821

The clearings for the entire South for December, 1916, were $973,063,000, against $699,000,000. Certainly this is convincing.

Now for the automobile end. Granted that the automobile sales this year have doubled the number of cars, which appears to be a conservative estimate, but because of peculiarities of keeping license records, this fact cannot be verified until the end of the present fiscal year. Granted also that the improvement of roads will double the mileage of each car, which travelers assert is a safe proposition.

Must Double Repairshops

To meet this condition, the repair service would have to be at least doubled, for it is a known fact that the repairshops were making good money previous to this year, which is a pretty certain indication that they were busy. The present figures, owing to rapid development, cannot be entirely accurate, but in the appended table is the latest count of automobile business houses in these States.

The figures given would indicate that Florida was the best off of any of the states mentioned, but the oral evidence of those who know all of these states is that it is the most poorly equipped. An



—The Country Gentleman

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officer of a local specialty manufacturing house who has trade throughout this section said:

"Within a month I have talked with accessory jobbers in every chief city of the South, especially Atlanta, Jacksonville, New Orleans, Birmingham, Chattanooga and others. Without exception they mentioned the lack of adequate service in general repair garages. There is a great need of competent help in these and a need for honest, intelligent owners and foremen. Florida dealers told me that it was a fact that the repair work in smaller towns was so poorly done that many tourists refused to bring their expensive cars South for the winter for fear they would be ruined by incompetent workmen."

Condition Is Serious

"Do not mistake me," he said, "I am not talking of a condition that threatens to impair the use of cars or a woeful lack of help, for there are many excellent service stations, some independent but usually connected with dealers' establishments. But it is a more serious condition than exists in Missouri, Oklahoma, Kansas and the Northwest, where the need is bad enough."

In the above figures, apply any test you please. Take Kentucky with 160 garages and 58 repairshops, a total of 218. There are in Kentucky more than 160 towns that support newspapers. There were registered last year more than 23,000 cars. Louisiana, at last accounts, had 17,000 cars and a total of 97 garages and repairshops and only 17 supply houses. This is an indication as to how the figures test out.

Another cause of shortage of labor is that more than 100,000 negro men (taking the U. S. Department of Agriculture estimate) have left the South within the last 15 months for employment in the North. These men were recruited by railroads and large industries to take the place of the men who have ceased to come from Europe.

They were the best workers in the South, many of them mechanics. Their places have been hard to fill and the filling of them has made the supply of labor very short. Also, some of the large automobile and tire factories have been recruiting help from the South, offering big wages, mechanical education and the attractions of the North. Sunday, Jan. 14, such advertisements appeared in practically every newspaper in the South. The lure of the city caught many men.

Wants Competent Men

E. A. Hatfield, president of the Mississippi Valley Motor Co., Oakland distributers controlling a large territory on both sides of the Mississippi, said:

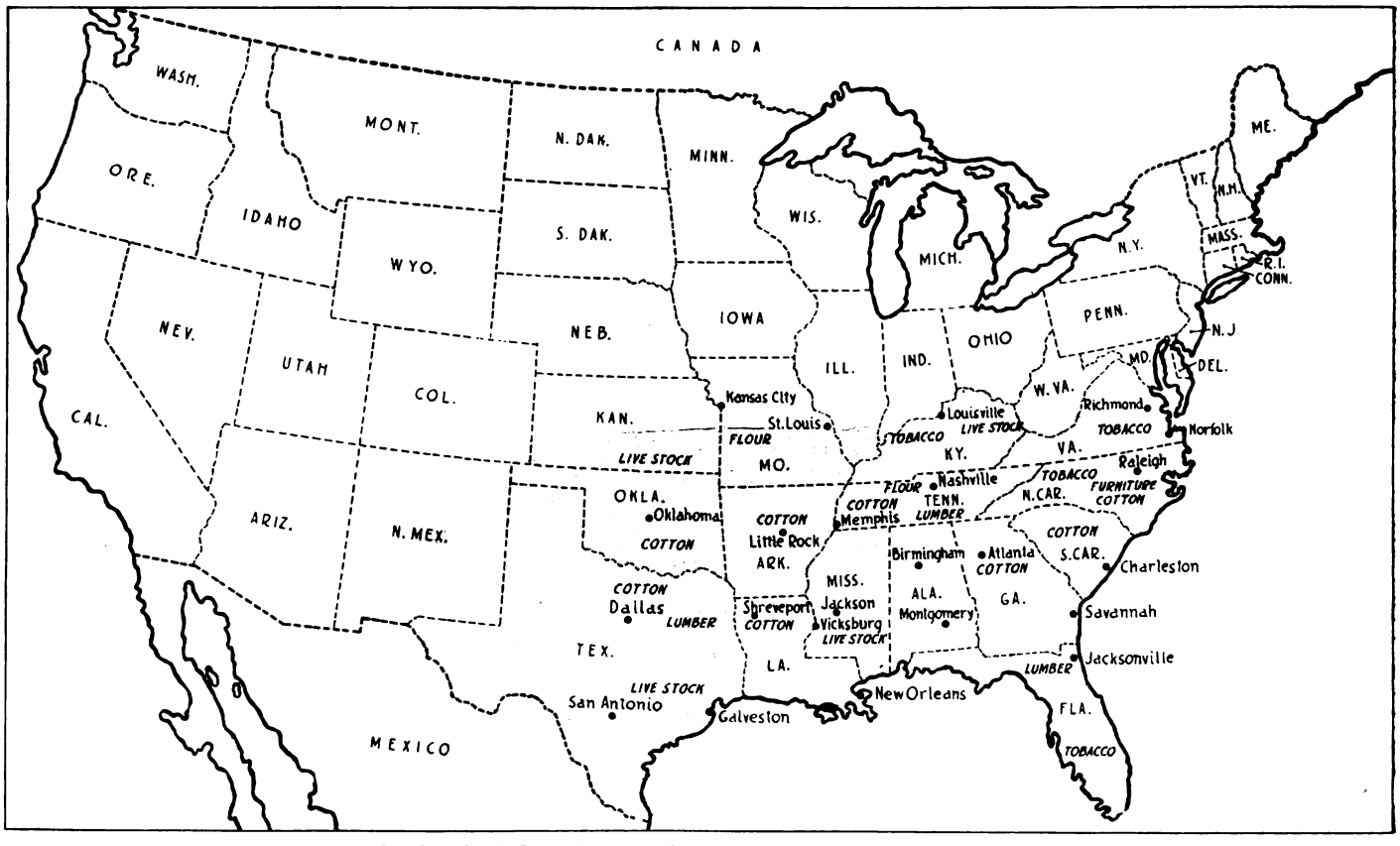
"We have inquiries constantly for competent men to go South for work in service stations and I could name at once several towns where good openings for shops are apparent. The general repair service in the South has not had time to catch up with the selling, as it will in time I suppose. But this lack of repair work must not be construed as a lack of service on the part of the dealers. They are keeping their cars on the road by their own service stations.

Taken as a whole the dealers in the South control large territory and are doing a business as large as the factories will permit. They are enlarging their service stations as their trade expands and are training working men with the aid of superintendents from the factories. But beyond these service stations, a great need is evident."

Competent Salesmen Are Scarce, Too

C. L. Derrickson, sales manager of the McQuay-Norris Mfg. Co., St. Louis, said: "Accessory jobbers have talked with me several times recently concerning the lack of competent salesmen. The accessory business is growing so rapidly that there is no help to be obtained. The only way to get salesmen is to make them. The same must be true of mechanical help. To me, the best evidence that there is a lack of competent mechanical help is the demand for the men who attend the numerous schools. Many of these schools are doing an excellent work and many state schools are recognizing the need of help and are adding mechanical courses. This comes to me in the way of requests for our men to appear at these schools and give lectures on our branch of the work."

Another evidence of the need of such men in the South is the fact that practically every distributer of cars in the South in this city employs traveling me-



The Sunny South is the Land of Promise for the good mechanic. Money and cars are pouring into the shaded portion. There must be repairshops to care for the cars.

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chanical experts to cover his agencies. These men are dated ahead so that the local agent can have the cars that are giving trouble at the headquarters. Often these men travel in pairs, a mechanical expert and an ignition man. The agencies they visit are not all of them too small to support a service station, but many of the agents are willing to employ a good service man, but cannot get one to stay regardless of wages. The mechanics do not seem to love the small town.

A. J. Clayton, of the Mississippi Valley Motor Co., just back from an extended selling tour in the South, says: "A person who has not been in the South recently cannot imagine the conditions there as to the growth of the automobile business. It is only natural that the general repair business should not keep up. The dealers' service stations are well conducted, but they do not want too much general business.

"I could name a number of towns where a competent repairshop could make a handsome living. While there are good repairshops in the South, there are too many where there is no real knowledge of the business. They can put in a spark plug, an axle or stop a leak, but beyond that they are lost. Any kind of help has been hard to get in the South because of the demand for work and the repair men have been forced to take what they could get, in many cases negroes who do not care."

Wherever you tap this trade pipe line it gives the same information. H. J. Hopkins, accessory buyer for the Geller, Ward & Hasner Hardware Co., said: "The question of competent help for the accessory business is great even here in Missouri. Any one who knows the condition of this state can readily see the need of it in the South, where the automobile business is forging ahead so rapidly."

This is not an invitation for any one to go south, start a repairshop and believe that he will prosper. There are a good many ex-chauffeurs and blacksmiths there now. Said one southern traveler:

"The men who are wanted in the South are the men who know something of carburetion, ignition, etc., men who are not afraid of the inside of an automobile. The service stations are being started by experts from the various factories and they are showing the people what real service means. It is not going to be as easy as in former years to 'put over' a bad deal.

"The people there are in earnest and the man will find it necessary to prove that he knows his business, then there will be work in plenty. My advice would be for the mechanic to go south, get employment in a dealers' service station or recognized, competent garage or shop for a few weeks until he looks around, then pick his town and go to it. Not every town is open to new shops, but most of them are and in many of these small cities, he can find two or three dealers who will throw to him their service work."

Dealers and Garages in The South

	June, 1916			January, 1917		
	Dealer	Garage	Repairshops	Dealer	Garage	Repairshops
Alabama	138	91	50	172	109	74
Arkansas	10	74	50	174	96	59
Florida	201	213	100	246	272	163
Georgia	255	234	104	315	266	123
Kentucky	215	167	62	291	230	82
Louisiana	87	62	30	120	67	45
Mississippi	106	69	37	133	84	50
North Carolina	238	289	84	306	233	111
Oklahoma	308	261	80	386	311	125
South Carolina	120	105	43	156	113	58
Tennessee	161	117	59	188	136	75
Texas	582	457	235	626	488	267
Virginia	197	147	95	230	158	111

Washington Dealers All Prospering

NORTH YAKIMA, WASH., Feb. 19—During 1916 the automobile dealers of this city sold more than $1,000,000 worth of cars and equipment. This amount does not include repairs, repair parts or used cars sold.

For new cars alone $883,243 was spent, the number of cars being sold was 1421, making the average price $620.

There was a total of $90,400 paid for gasoline. For accessories the total spent was $80,385, for tires $122,847, for lubricating oil alone $10,673 was spent with $13,060 being spent for vulcanizing.

The value of the buildings that house the industry here is conservatively estimated at $137,900 and the land on which they stand is valued at $145,500 making the entire investment $280,400.

There are 132 persons engaged in the industry with a pay roll total of $115,016.

Big crops throughout this territory have made farmers the best customers and the coming season is expected to break all records. Business booked for spring delivery exceeds the amount done for the same period last January.

Dealers are expecting an increase of from 50 to 60 per cent.

Crops are better this year than last and dealers claim that in 1916 they could have sold more cars had it not been for the inability to fill orders and for the railroad to transport cars to this territory.

Stockmen and fruit growers bought 75 per cent of the cars. Both stockmen and fruit growers are enjoying greater prosperity this time this year than they did last, which gives every indication that this territory will have a wonderfully more successful automobile season this year than last, and when it is considered that North Yakima has a population of only 12,000 it becomes evident that it is one of the richest fields for the automobile industry in the United States.

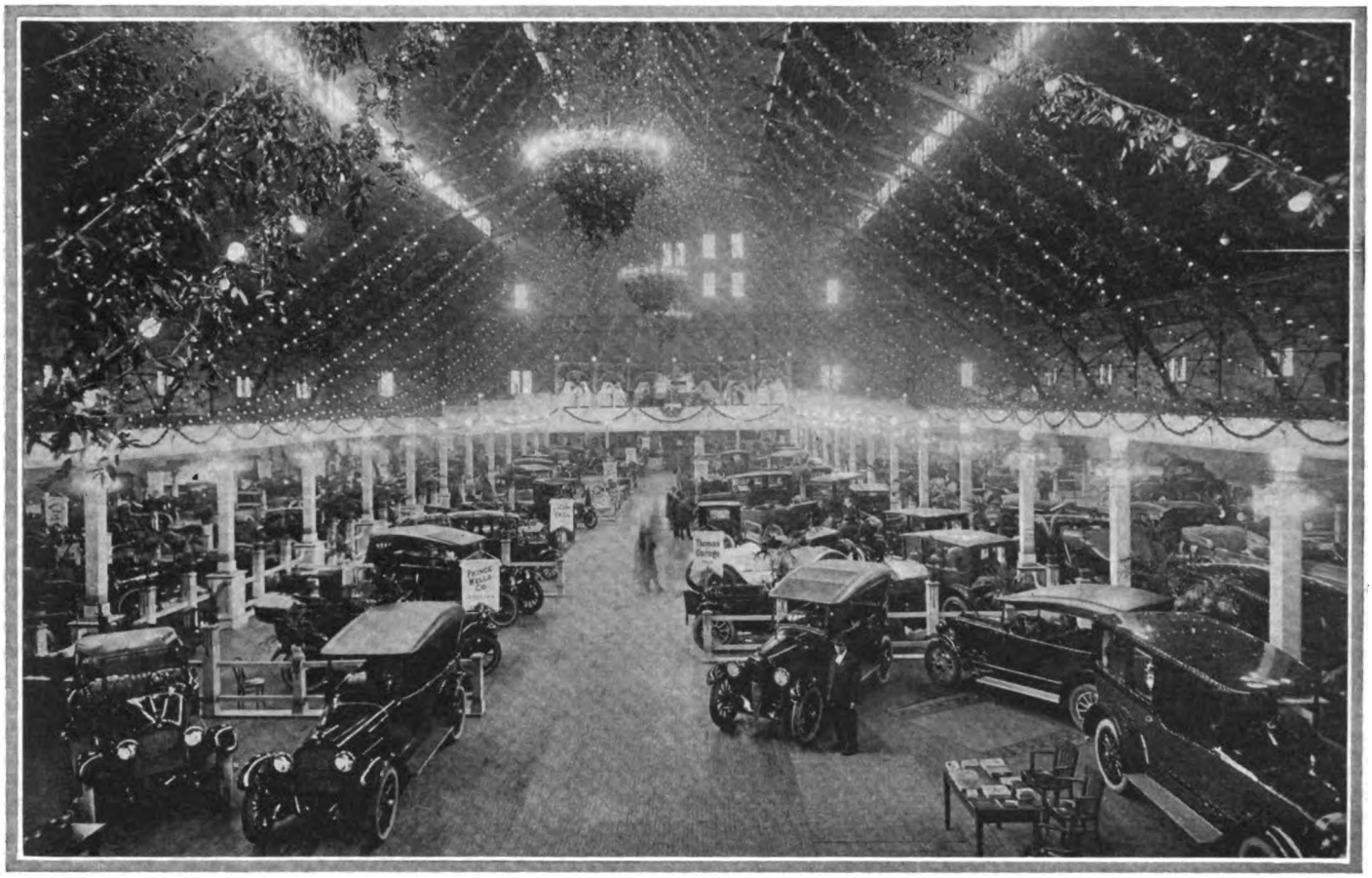
Hartford Studebaker Dealers Gather

HARTFORD, Feb. 19—The Colonial Automobile Co., Studebaker dealer, entertained its sub-dealers at a dinner at the Hotel Bond Wednesday noon. Guests included distributers from New Haven, Waterbury and New London and their sub-dealers. F. R. Bump, manager of the New York Studebaker branch presided and addressed the gathering on the freight situation. B. B. Hanger, manager of the Boston Studebaker branch discussed retail sales in New England and outlined the methods pursued by Boston dealers in their efforts to get cars through on time. District Manager Driscoll of the factory force emphasized the importance of early ordering. Following the dinner the party visited the show.

Ford Dealers Can't Stock Cars

DETROIT, Feb. 16—Owing to freight conditions, the Ford Motor Co. is not permitting its dealers to stock up with cars. Shipments are made only after the car has actually been sold. In this way the cars have moved exactly in accordance with sales and not in accordance with the individual estimates of the dealers on the number of cars that will be sold in a certain territory.

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The Louisville show is the aristocrat of motor car shows. The same standards that applied to the staging of the famous horse shows are in evidence at the motor car show. The Louisville show is a thoroughbred.

The Fly in the Ointment

BLUE GRASS STATE WANTS CARS

More Than Half Those Sold in 1916 Cost Under $500 and the Six Best Sellers Are Under $1,000—But Dealers Can't Get Them

LOUISVILLE, Feb. 17—Louisville's annual show is the largest to hold the attention south of the Ohio River and marks the opening of the selling season in this section.

The territory covered by dealers as a rule includes Southern Indiana, the entire state of Kentucky and in some instances Tennessee, the western portions of West Virginia and Virginia.

Business is far better than it was at this time last year. A conservative estimate, based on interviews with dealers, shows an increase of about 50 per cent so far this year over the same period in 1916. A few dealers declare business is 75 per cent better.

The majority of the dealers have a larger list of live prospects, who have promised to sign up in the spring, than ever before. Lack of deliveries is the principal complaint Kentucky dealers have to make against the factories. Here in the Bluegrass State the truck is fast coming into its own. Never were business men so interested in the truck.

1916 Most Prosperous Year

The automobile in Kentucky experienced its most prosperous year in 1916. The actual increase in registration was 12,000 for the year. "If 10 per cent of the cars registered in 1915 were consigned to the junk pile or taken outside of the state the sales of new cars reached the total of 14,000, or an increase of 71 per cent," says Hugh Ramsey, deputy commissioner of motor vehicles, who is an authority on the Kentucky automobile situation.

Of these 14,000 new cars about 80 per cent were cars priced under $1,000, many of them under $500. The 20 per cent of higher priced cars will bring the average price to about $700 per car, or about $10,000,000 worth of new cars were purchased in the state in 1916.

The total state registration for 1916 was 31,500 cars. The entire receipts are turned over to the state road fund, less the expenses of the department.

This is every indication that the collections for 1917 will run to $275,000, as the same proportion of increase would give a total of 50,000 cars.

To give an idea of the growth of the automobile in Kentucky, the car and truck registrations by years since 1911 are given herewith:

1911	2,868	1914	11,746
1912	5,147	1915	19,500
1913	7,210	1916	31,500

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A tabulation of the licenses issued during three months of 1916, when practically all the registrations applied to new cars, show that the "six best sellers" had as a leader a car selling under $500, which was registering 57 per cent of the total number. Number two was a car selling about $700, with 5½ per cent. Number three sold about $600, with 4 per cent. Number four sold at near $1,000, with 3¾ per cent. Number five was about $500, with 2½ per cent, while number six sold for about $800, with 2 per cent.

This shows that the increase has been largely the small car, and it has gone not only into the country, but the cities have taken their proportion. The sale of a small car this year means the sale of a bigger one next. In the autumn of 1915 six men came from Henry county to Frankfort together to get licenses for their new cars of a small type. In 1916 four of these men returned together for licenses for as many large cars. This is a general tendency.

Louisville's Many Interests

The estimated population of metropolitan Louisville to-day is 325,000; within a twenty mile radius, 400,000. The city is the largest exporting center in the world for tobacco and whiskies. It is the largest grain market in the country outside of Chicago, as well as the largest livestock market.

Louisville also is the principal mahogany market and manufacturing center in America. Other great industries here are: agricultural implements, porcelain-lined bath tubs, paints, varnishes, cement, chewing gum, cotton seed oil, cotton seed oil products, organs, hardware, boxes, barrels, stoves, millinery, window shades and loose-leaf ledger supplies.

Louisville's trade rounded out the year 1916 in better condition than for many years. Many manufacturers and jobbers reported the best business in their history with good prospects for the new year. Increases of 25 to 50 per cent in the volume of business as compared with 1915 were common. Holiday trade ran from 40 to 50 per cent ahead of a year ago.

Totaling nearly $1,000,000,000, an increase approximately of $200,000,000 over 1915, the previous best mark, bank clearings in Louisville for the past year reached the highest figure in the city's history. The exact amount was $942,143,136, while that of the preceding year was $742,391,281.

Bank Clearings Steadily Increase

With the exception of 1914, when there was a decrease of nearly $50,000,000, Louisville clearings have steadily increased since 1908, the year following the panic. Louisville's progress has been rapid and substantial, and to-day the city's exchanges are in greater volume than a number of other cities of equal size or larger, including Indianapolis, Buffalo, St. Paul, Seattle, Denver, Providence, Columbus and Toledo.

Kentucky, with a gross area of 40,598 square miles, had a population of 2,386,866 on Jan. 1, 1917, according to the Census Bureau's estimate. There is only one automobile for every seventy-five persons in the Blue Grass State to-day, which indicates what immense possibilities Kentucky holds for the sales organizations of the automobile factories. Then, too, there is a good foundation in this territory for future business.

The principal crops of Kentucky in 1916 possessed a farm value of approximately $187,531,590, an increase of $58,267,000 over 1915. An increase of more than $4,000,000 in whisky tax during the calendar year 1916 over the preceding year brought the grand total of internal revenue collections for the same period to a new record in the Fifth district of Kentucky.

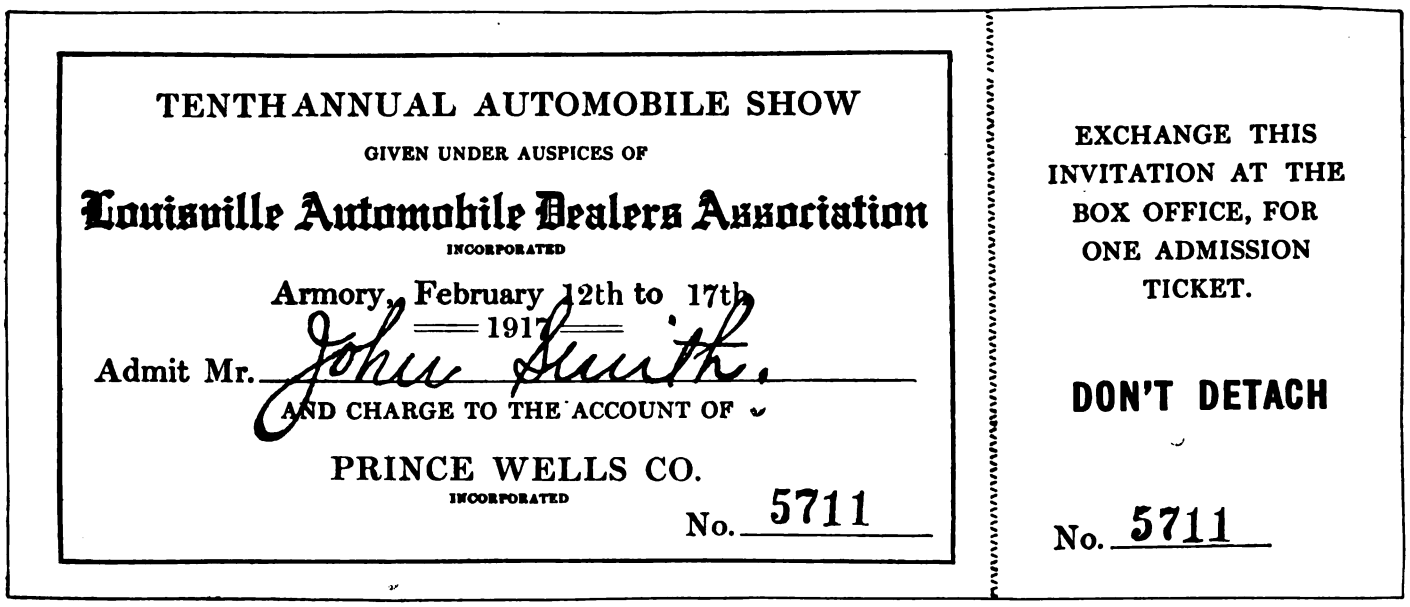
Whisky collections advanced from $14,872,725.08 in 1915 to $18,017,028.51 in 1916, an increase of $4,144,303.43. The grand total of internal revenue collections in the district for 1915 was $18,813,676.74, and for 1916 $22,380,498.05, an increase of $3,566,821.41. Whisky brought in all of this grand total for 1916 except $4,363,469.54.

Big Figures for Booze

It is estimated that over $60,000,000 has been spent in distillery and brewing property in this State. It is further estimated that the operating capital of Kentucky distilleries aggregates something like $125,000,000. These figures to some extent give an idea of the importance of liquor making in a State famous from its earliest days for this industry.

Leaf tobacco is bringing the highest prices in more than ten years, due to the widespread and pronounced prosperity and the great European war.

According to the United States Department of Agriculture, the State of Kentucky in 1916 raised 435,600,000 pounds of tobacco, which had an average farm value on Dec. 1 of 12.7 cents a pound, or a total value of $55,321,200. The crop of 1915 was estimated at 356,400 pounds, and the average farm value on Dec. 1, 1915, was 7.8 cents a pound, making the total value of the crop $27,889,200. Thus it may be seen that the crop of 1916, although only 79,200,000 pounds larger than that of 1915, had a value twice as great.



Louisville dealers give these cards to their prospects. The prospect presents the card at the box office and gets a ticket for it. The stub is immediately sent to the salesman at the display—and he is ready to watch the door for the prospect

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Kentucky's Thoroughbred Show

And It Has a Sure-Fire Method of Bringing Prospect and Salesman Together

LOUISVILLE, KY., Feb. 17—The Louisville show is the aristocrat of motor shows. Though not the largest show of the year, it possesses a certain class and polish that is not equalled even at the national shows.

Kentucky is turning from the horse to the motor car, and the same standards that applied to the staging of the famous Kentucky horse shows are demanded in the motor show. The Louisville show is a thoroughbred.

This is the 12th annual show, and is held in the Jefferson county Armory—a one story building about 200 x 275, and having 55,000 sq. ft. of unencumbered floor space. The show is given by the Louisville Automobile Dealers' Association, though dealers not members of the association are permitted to exhibit.

Forty-seven different makes of cars are displayed, of which thirty-one are gas pleasure cars, three electric pleasure cars, and thirteen gasoline trucks. The total number of cars displayed is 167, and in addition there are a dozen or more accessory exhibits by local dealers.

Exhibits Not Crowded

One of the big merits of the show is that as a rule, the exhibits are not overcrowded. This is partly due to the manner in which the exhibit spaces are allotted.

The spaces are given in the order of application, until all are taken. Then the books are closed, and that is all there is to it—no one else can get in under any circumstances. Over 60 would-be exhibitors were turned away this year, on account of lack of room. Though this undoubtedly worked a hardship on them, the effect on the show was good, as it prevented overcrowding.

Show Layout Is Good

The general layout of the show is also good. Six rows of exhibits run lengthwise of the armory. There are two rows, one at each side of the show, placed back to the wall. Between these are two double rows, placed back to back, and separated by 10 ft. aisles. These aisles are actually 16 ft. wide, as no cars may be placed within 3 ft. of the aisle.

As stated, the show is composite, but the exhibits are classified. In general, the truck exhibits are at the sides, the pleasure cars in the center, and the accessories at the ends. Even when one concern was exhibiting both pleasure cars and trucks, the above arrangement was followed.

It would be difficult to pick out the best exhibit, as all are laid out with good taste. One of the best is that of the Thomas Garage, exhibiting the Winton and Paige. The cars here are placed in a more or less unconventional manner, forming a rough semi-circle, so that all may be seen at once, or a long distance view obtained of any particular one.

The Prince Wells exhibit is also good, the cars being arranged to nearly enclose the exhibit. Though all cars could readily be seen from the aisle, this arrangement is more or less exclusive, and permits the salesman to get the prospect inside the ring, and away from the crowd.

Each Exhibit Marked Off.

No doubt the main thing that gives individuality to each exhibit is the fact that each is clearly marked off from its neighbors by a fence 3 ft. high. The distinction between the exhibits is still farther marked by 14 ft. high pillars on the corners between the exhibits and the use of growing plants placed on the low fence posts. These plants give a little touch of color, and lend a background to the whole.

The remainder of the decorations are chiefly electrical, consisting of festoons of evergreen draped from the center of the high ceiling to the balconies, and carrying many lights. The efforts of the decorators were, first and last, to display the cars, and this has been done to a marked extent.

Metropolitan exhibitors could get a number of tips here, on keeping the exhibits clean and tidy. Each exhibit was the last word in neatness. With few exceptions, uniformed attendants were constantly at work polishing the cars, keeping catalogs in order, and in general keeping the exhibit in fine shape. These attendants were in uniform, and formed a part of the scene.

A Merchandising Show

Perhaps one reason for the exceptional care taken in staging the show, is that it is a merchandising show. During the winter months, the retail business here quiets down. Though the people owning cars still run them, new car sales drop. The show marks the opening of the selling season, and it is during this week that the contracts are closed with the sub-dealers, and many sales to private owners are made.

As a result, the salesmen in every exhibit are right up on their toes all the time. Prospects that they have worked the whole winter are here, and going to buy, and are actually using the show as a means of making their choice. The curiosity-and-follow-the-leader crowd are not so much in evidence here as at other shows, and the majority of the visitors are car buying material.

Locating the Prospect

The members of the Louisville Automobile Dealers' Association exhibiting at the show have an effective method of locating the prospect the minute he enters the show. Each prospect is sent an invitation. This invitation is in the form of a ticket, with a stub. The name of the person invited is written on the face of the card, and the card bears the statement that a ticket will be given for it at the box office, and charged to the account of the dealer sending the invitation.

The joker lies in the method of handling the cards. Before they are sent, the address of the recipient is written on the back, and the initials of the salesman handling the deal put down beside it.

Then when the prospect gives the card to the box office, the stub is retained, and the ticket immediately sent by special page to the dealer's booth. The salesman handling the deal gets busy and locates the prospect. The dealers think if they can locate a prospect the minute he enters the show for 25 cents, the price of admission, it is 25 cents well spent.

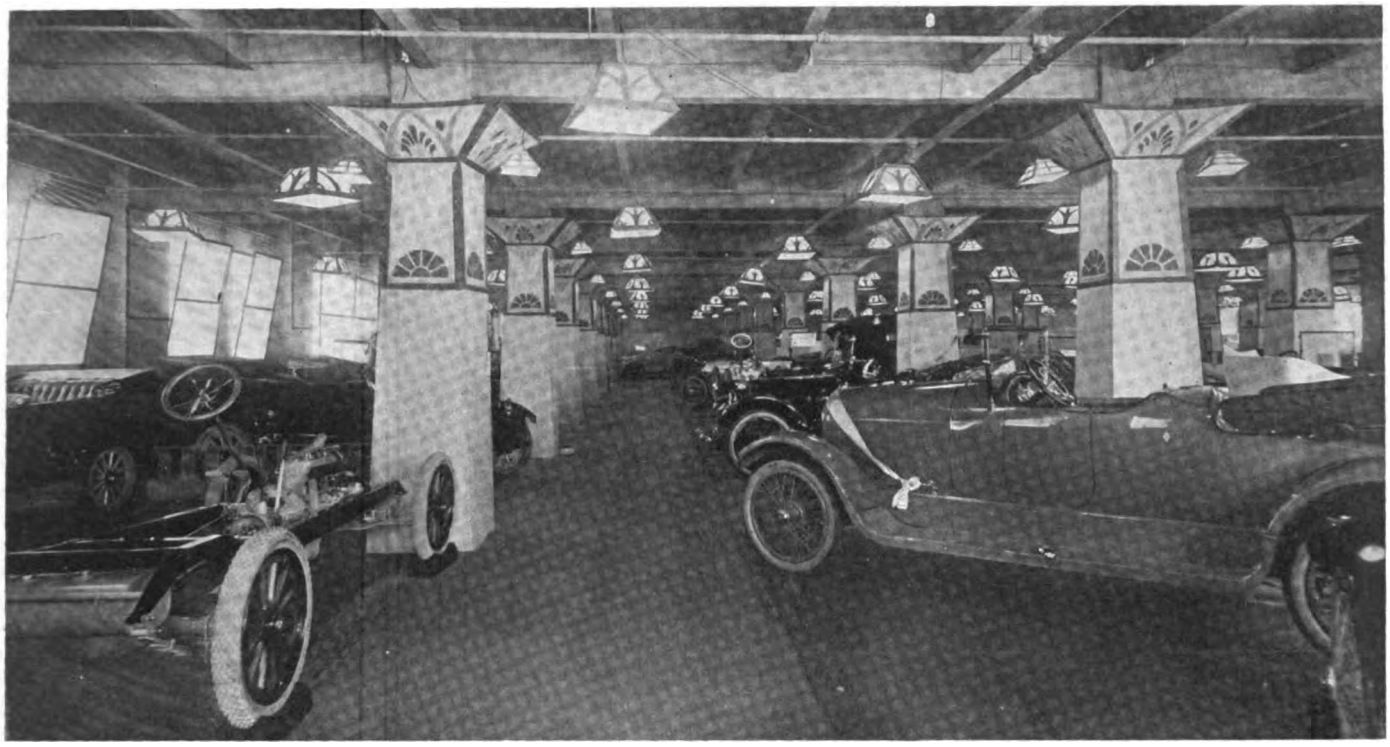
Unless a show pays for itself, it is a failure. On this basis, the Louisville show was a success before the doors opened. Three thousand dollars was the balance of this show last Monday morning, and even with the rebates to the members, there will be a handsome balance in the treasury.

Committee Management of Show

The Louisville association is an active association, and uses this balance in a manner that will do most good to the community. Improvements of highways and streets, enforcement of laws for the protection of motorists and the promotion of motor sports are a few of its activities. The money is unselfishly used.

Though the planning of the show is an association affair, the executive work is done by a committee. Other dealers' associations could well come here for advice on how to stage a show. All possible points are thrashed out in the meetings, a cast iron contract framed and printed, and the executive work turned over to the committee. Then, no matter what the circumstances, the terms of the contract are filled for that show. Any defects are only remedied for the next show, and the work of the committee is clear. This cuts out a lot of controversy.

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The fifth floor is the Turkish room. Note the excellent effect that is obtained by slightly pyramiding the coverings on the pillars.

Kansas City's Real Show

WHEN we realize our mistakes we begin to progress. And this is why Kansas City this year has its best show. It is a clean, well-arranged, well-organized show and the dealers have reason to be proud of it.

By Ray W. Sherman

KANSAS CITY, Feb. 17—Kansas City this year has a show of which it may well be proud. It may be proud from two points of view:

1. It is, as a show, and compared with other shows, a very good show.

2. Compared with last year's show and other preceding Kansas City shows, it is hundreds of per cent ahead.

Kansas City has this year set out to have a real show—and it has it. Last year it didn't pay much attention to the finer details of merchandising in its enormous exhibition, and the details were sadly neglected. But this year it has given great attention to these finer points, and the result is that Kansas City as a motor merchandising center has stepped several years ahead of its normal progress.

Last year the show was messy, crowded and not what a good show should be—and in its show story Motor World a year ago pointed out some of these failings. And Motor World wishes to express its appreciation of the manner in which these criticisms were received, for instead of their being resented they were accepted in a fair-minded spirit of constructiveness, and the Kansas City men set out to make their show what Motor World said it wasn't. And they have done it.

Striking Example of Progress

It is one of the most striking examples of planned progress that has ever appeared in the motor industry. Kansas City may be proud of itself.

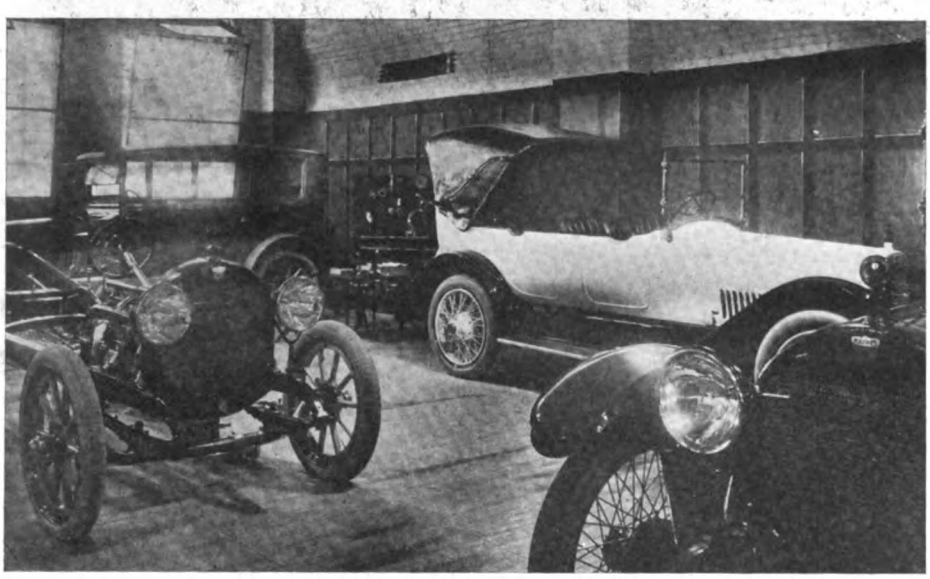
Some of the credit is, of course, due to E. E. Peake, secretary of the Kansas City Motor Car Dealers Association and manager of the show, but the dealers themselves have a shining part in the whole work, for without their co-operation nothing could have been done. They have been sold on modern merchandising, and the progress they have made in their show should and will be the stepping stone to other forward strides in business and salesmanship which are being made everywhere as the industry hurries toward the higher plane that is coming—toward the survival of the fittest.

To analyze and compare: Last year the decorative scheme was not bad. This year it is many times better. Full ad-

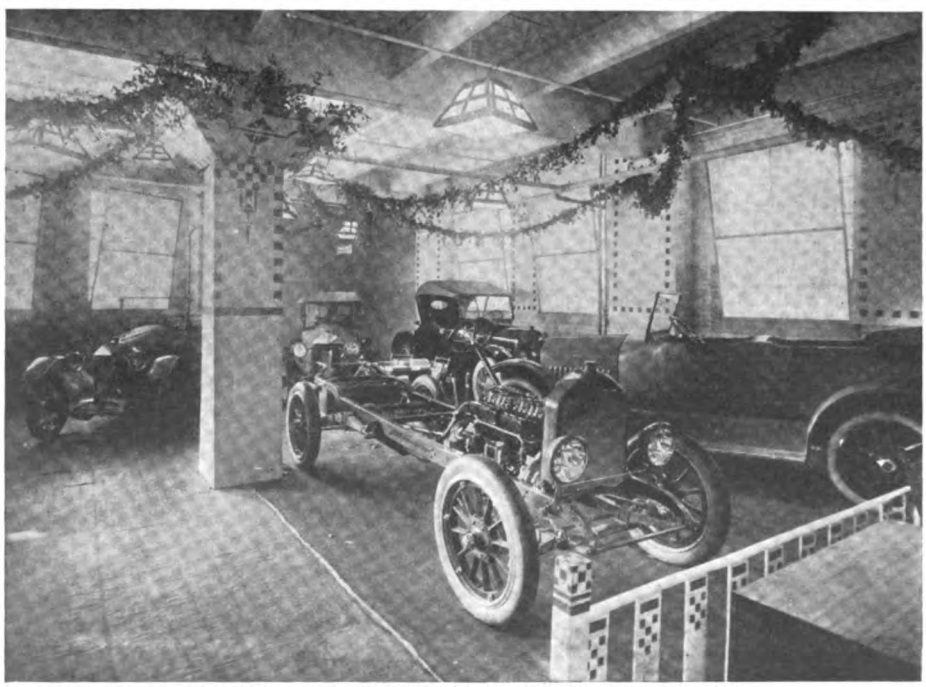
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The third floor is the Hofbrau room. Note the plate-like objects on the plate rail around the pillars



Haynes allowed plenty of room, placed its chassis in front, its high car at the rear, and left plenty of space for visitors



The National and Scripps are shown in a single space, yet note the roominess in the exhibit and the variety of position of the cars

vantage has been taken of every opportunity in the difficult five-story building that is used and the scenic setting is good.

Last year many of the exhibits were hopelessly crowded. Dealers put cars in exhibits where there was no possible chance of their being seen because of the congestion. It was just a mess of cars —and this same fault exists in many other shows this year, just as it has existed for years past.

No Crowded Exhibits

This year there is not an exhibit that is typical of this crowded condition. Practically every one of them has plenty of room. This has been done with deliberation. It is not accident. "I left a car out of my exhibit that I wanted very much to get in," said Manager Elwood, of the Marmon branch. "But it was going to crowd things so I left it out."

The result is apparent. The Marmon exhibit—like all the others—has room inside. People can get into it and walk through it. They can see the cars to advantage. They can get good views of the bodies. It shows up the line. Elwood is getting some value out of his space—as are all the others.

And they should get value, for this show draws 3000 dealers from one of the most prosperous sections of the world. This is as many dealers as go to the Chicago show and more than attend New York's exhibit.

A Pleasure To Walk Around

All this roominess makes it a pleasure to walk through the show. It is more pleasant to spend an evening here than in the Chicago show, for many of the exhibits there were hopelessly crowded. The throng could not get anywhere at points except in the aisles, and the aisles were so narrow that the congestion was cruel. Progress was almost impossible.

Last year the show was dirty. The floor covering was a sort of sanded paper which developed a lot of dust. This year the floor—difficult to cover with anything —is covered with canvas and denim.

And what is more, last year's show was littered from end to end with papers. Literature that was distributed was discarded by show visitors and was let to lie where it fell. The show was cleaned once or twice a day, but between cleanings the floor was covered with rubbish.

Uniformed Attendants Are Active

This year nearly every exhibitor has a UNIFORMED attendant, most of them colored men. These men wear brown or white overall union suits and stick by the exhibit from opening to closing time. Their sole duty is to keep things in order. They pick up scraps of paper from the floor. They dust off the cars. They keep the furniture in order, and

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they are a show feature worth while copying by any set of showmen.

If these uniformed attendants were in but a few exhibits it would not be such a conspicuous point of merit. But they are all through the show. They are part of that atmosphere of modern merchandising which, in some shows, makes some one dealer conspicuous because he is the only one to have uniformed men.

Last year the car covers—which cover the cars at night and are removed when the show opens—were pulled off and kicked under the cars, where they stood out like spots of omelette on the front of a dress shirt. It was the easiest way to get rid of them. Water pails and any other small exhibit properties were similarly shoved under the cars. Even under the highest priced and most luxurious cars in the world were such heaps of junk.

And hats and coats were piled anywhere. The lowered tops of cars were favorite places for coats and hats—when the salesmen were not wearing the hats.

A Place for Hats and Coats, Too

But this year there is in each exhibit a big mahogany colored box, and into this go the hats and coats and any other loose articles that may be about the exhibit. It is one of the great improvements at the show.

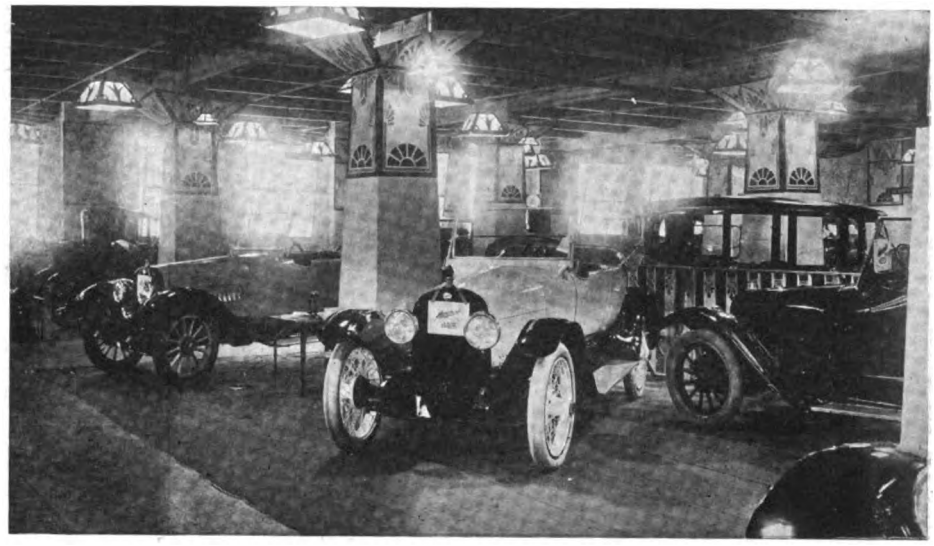
And salesmen were NOT wearing their hats. The farmers of Kansas and Missouri might not notice the difference if hats were worn, but the hatless salesman is now a recognized feature of salesmanship in Kansas City.

A year ago salesmen—God knows they get tired—did considerable lounging about in cars, they leaned upon the cars, they sat on runningboards, they cocked their feet aloft in attitudes of comfortable unsalesmanship. But this year nearly all of this has been eliminated.

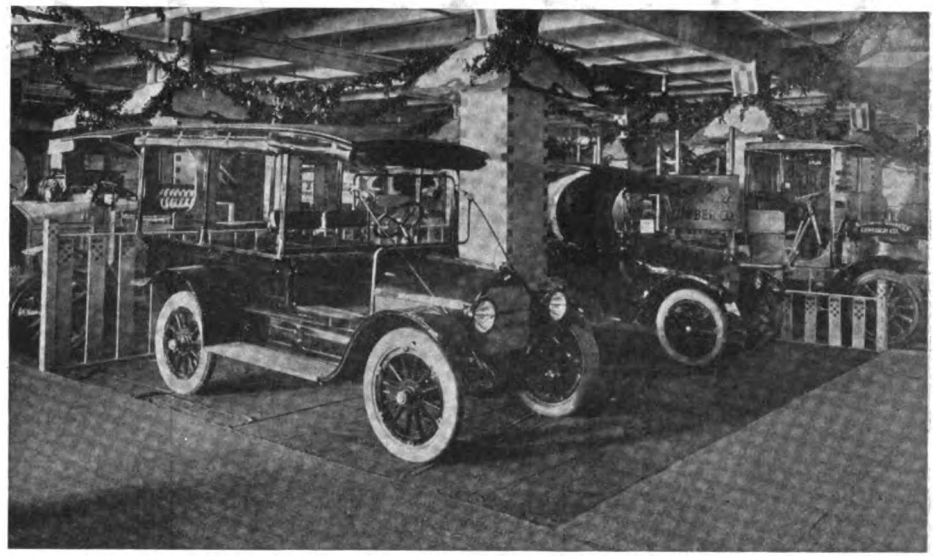
Sales Forces in Shifts

Dealers are working their sales forces in shifts. This gives the men time to rest their feet. And with the shift idea is a rigid rule that salesmen are to look and act like salesmen—and they do.

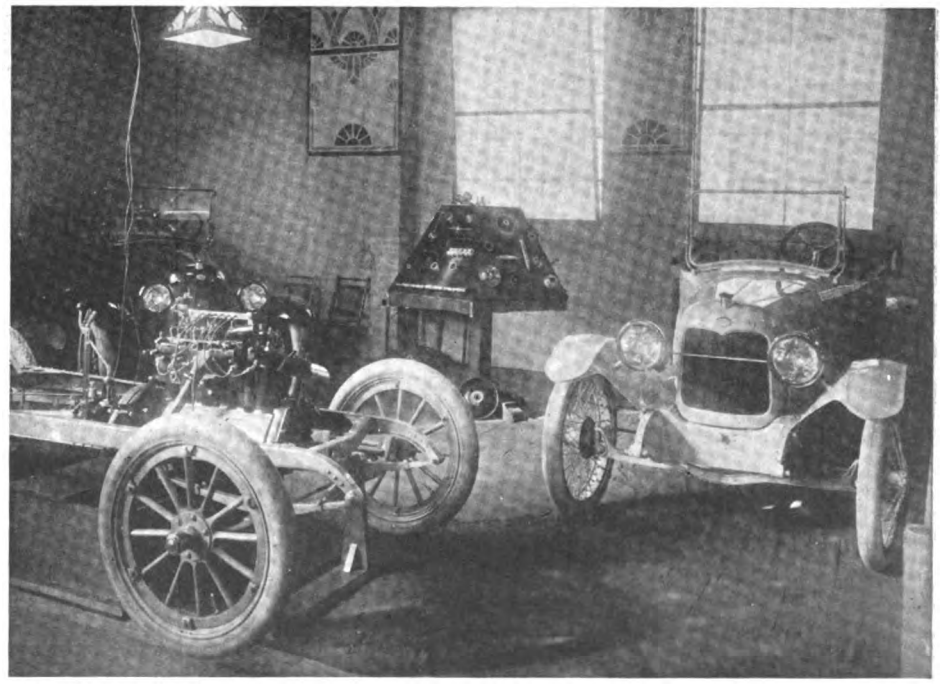
Great attention is being paid to the placing of cars in the exhibits, aside from the giving of plenty of room. Even if there be room it is still possible to make the show monotonous by setting all the cars the same way so that a head-on or a side-on view is obtained of all. This also makes a show stiff and angular in effect. The Kansas City dealers, however, have studied this matter of arrangement. They have set cars in all sorts of ways. They have allowed room for a visitor to get a good side view of at least one or two models. The



The Moriarty Motor Co. gave considerable study to the placing of its cars, especially to its special color cars. Note the variety of position



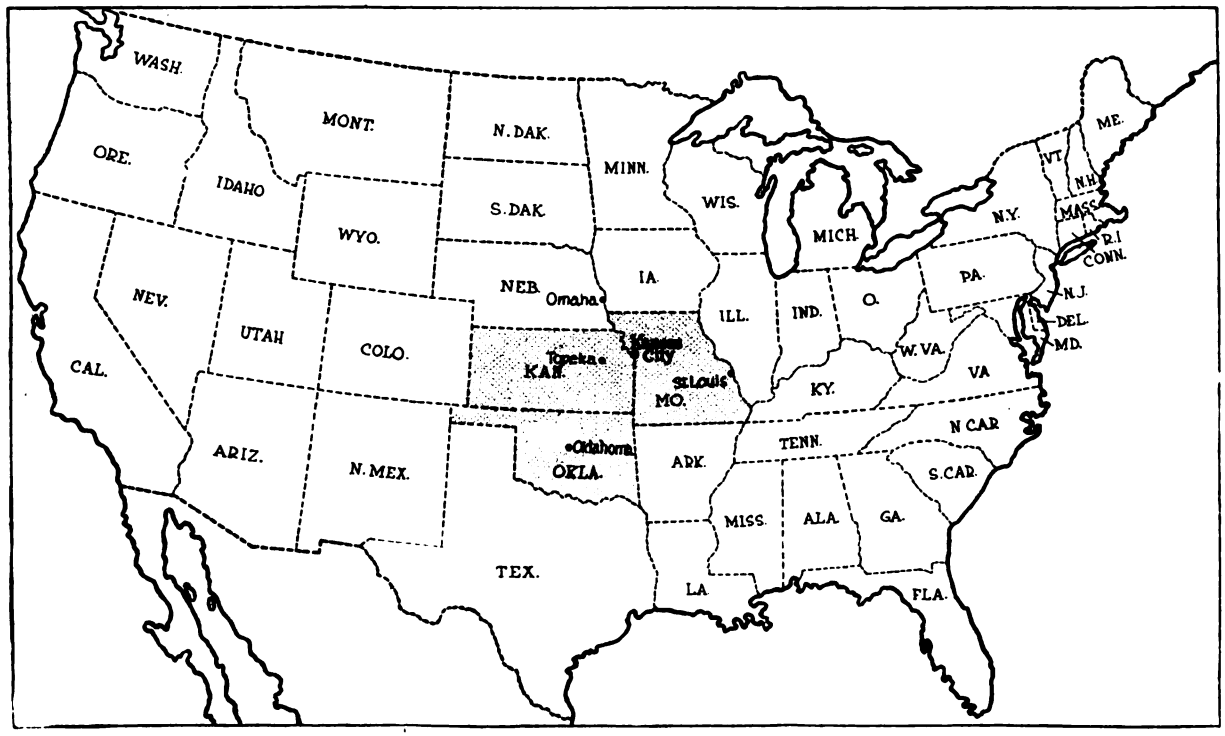
The truck show is on the second floor, and even here the decorations were well thought out



The Maxwell allowed plenty of room and wisely placed its chassis at the front and gave different views of its two cars

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Whence Kansas City Draws Its Trade



chassis are placed at the aisle, where they permit a view over them of the cars at the rear of the exhibit. Several exhibitors have spaces such that they can set their star models in from the aisle four or five feet, and they assuredly are repaid in the effect that is secured.

There are numerous special colored cars, many of them shipped in by the factory. These are displayed to good advantage and are one of the show features.

Everything in Its Place

With each exhibit goes a small table and chairs. Literature is kept on these tables—at the rear of the exhibits. Some of the literature might be kept in more orderly piles, but this is much better than the runningboard tables frequently used in exhibits.

Cars are decorated with ribbons. Some of the exhibits have flowers. One or two have rugs. The association took up the rug question this year and decided that the use of expensive rugs by some dealers might work a hardship on smaller dealers, so the opinion was that none should be used.

Rugs, however, do not need to be Turkish. Marmon gets a good effect with some grass rugs that are not expensive, and, anyway, it is good business for a dealer to get into the habit of owning properties of this kind for use the year around. They are always effective for special weeks in the salesroom and, for that matter, can be used the year around. The same applies to wicker furniture, chairs, vases for flowers and similar properties.

Speaking now of all shows, a stenographer and a desk are an excellent combination at the rear of an exhibit. Frederick E. Murphy at the Minneapolis show last week had an excellent plan. His stenographer co-operated in the sales work. When a salesman found he was going to have difficulty getting a prospect's name, or wished to leave the prospect and get to another, he gave the girl a signal, and to her was delegated the task of getting the name of the prospect and other data concerning him. The girls succeeded with ease where the men had difficulty. The result was a big list of prospects.

And at other times these girls did regular office work in the exhibit. They took dictation, answered the telephones and were generally useful.

Decorations Are Unobtrusive

The general decorative plan at the Kansas City show is an improvement over that of last year. In the accessory section are backgrounds and divisions, which makes the accessory show a better show. This is pleasing to the accessory men and is what every show should have if the building permits. The accessories are on the first floor, where they are seen by the visitor as he enters the doors.

The second floor is devoted to trucks, and it is quite a truck show.

The third, fourth and fifth floors are devoted to cars, each floor decorated differently. On each floor is a musical feature of some kind.

In the five floors are 180,000 feet of space. The attendance for the week, counting each entrance of each man once as one admission, will be close to 200,000. Last year it was about 176,000. The biggest night, Thursday, society night, was 13,000 paid admissions, but in addition to these there are exhibitors' and dealers' tickets and passes of other kinds.

Duplicate Signature System

Admission is 50 cents. The duplicate signature system is used on most passes and on all country dealers' tickets. The success of this system, states Manager Peake, is indicated by the fact that Friday about 60 passes were taken up. These were the passes of some of the 3000 country dealers who had gone home and left the pass with some friend.

Why the Kansas City show is a great industrial event is told elsewhere. This story is concerned only with the merchandising phase. As an exhibition of progress in business and salesmanship it stands in a class by itself.

When all the dealers in any city discover themselves, grasp avidly at new and constructive thought and almost over night weave it into their businesses, it assuredly indicates the presence of that stuff which is going to make the industry bigger and better—bigger in every way and better for us all, especially those who sell the cars.

(*Continued on page* 51.)

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ANGLES OF THE LAW



By George F. Kaiser

A Hacking Problem

Editor Motor World: I am engaged in the garage and rental business and have been sending a car to the railroad station to solicit trade until a few weeks ago when I was notified, through the attorney for the N. Y. C. R. R., that unless I desist at once from soliciting passengers at the E. S. R. R. station suit will be brought against me.

My competitor has a contract giving him the exclusive right to solicit passengers at the E. S. R. R. station. My predecessor was sued and the courts decided twice in his favor and at the third trial the decision was left to the judge alone, who decided that my competitor has a legal right to enter into aforesaid contract, which contract excludes competition absolutely.

Please inform me if a contract of this kind does not conflict with the Sherman Anti Trust Law. If so, how do I have to proceed to have the railroad company prosecuted? Is this matter in the jurisdiction of the public service commission?

N. Y. C. R. R. owns property surrounding the station. I refuse to believe that such unfair dealings are protected by law.—August Vogt, Saugerties, N. Y.

Of course, if the court has decided that a contract granting an exclusive right is valid you will have to abide by that decision. I do not think that a matter of this kind would come under the Sherman law nor that the public service commission could assist you.

If the railroad company owns the land all around the station, I think the courts will justify it in its attempts to prevent you from soliciting passengers on its property. This is done in New York City. Of course, you have a right to bring passengers to the station or to call for them there if they have ordered a car, but I do not think you have a right to solicit.

A Question of Notes

Editor Motor World: 1—Enclosed you will find a note exactly like one that was signed by the purchaser of a used car from us who, after making two payments, refused to pay more and declined surrender of the car. We were under the impression that in this case all we had to do was to take out legal proceedings to recover car but our lawyers say we cannot do this until the matter is settled by court, although it was expressed in the note, the purchaser waives all action, or right of action growing out of removal of car. As the matter now stands we were required to make bond for double the amount of purchaser's indebtedness to us, and all that has been done is that the car has been in the hands of the sheriff since then, which was about 6 months ago.

Any information that you can give us to clarify the matter that we might sell or regain possession of car will be appreciated.

2—One other matter: A dealer sells car to purchaser who gives mortgage note and has special body put on by a different concern. Purchaser is now able to pay the body builders for same and car has never left their possession. Can seller recover car without having to pay body builders, or is their claim prior to seller?—Borders Auto & Machine Co., Cedartown, Ga.

1—As the matter you speak of is in the hands of your attorneys I cannot, of course, properly give you any information concerning it. As they are, no doubt, well versed in the Georgia law, being Georgia lawyers, your interests are, I should think, being properly taken care of. This would appear to be the case from your inquiry. Why not have them explain to you why matters have been delayed?

2—If the car is still in the possession of the body builders, the dealer will have to pay them before he can recover on his claim as under the Georgia law they have the right to keep possession of the car until they are paid. If the car was in your possession your claim would come first.

Here Is the Note

$250....Cedartown, Ga....July 5, 1916.
No..... ..Ten months....after date we promise to pay to the
Order of....Blank Motor Car Co.....
...Two hundred and Fifty...Dollars,
With all cost of collection, including 10 per cent Attorney's Fee and interest at 8 per cent per annum from date.

Waiving the right of all Garnishment, Homestead and Exemption Laws of this or any other state. And each further waives demand, protest and notice of demand, protest and non-payment. And we hereby pledge, mortgage, sell and convey unto said payee, first as security therefor and second for security for any other debt or liability we may now or hereafter owe or be under to said payee, the following property which we guarantee to be free of encumbrance:
One Ford Touring car No. 98765. It is mutually agreed that in case Purchaser shall fail to pay all sums hereunder agreed to be paid at the time and in the manner herein specified that said seller may take immediate possession of automobile, attachments and equipment and all rights of the Purchaser hereunder shall cease and terminate absolutely, and Purchaser waives all action or right of action growing out of the removal or retention of car, and hereby agrees that thereon all unpaid balance of said purchase price and note representing same shall forthwith become due and payable.

With authority to sell the same at public or private sale or otherwise on non-performance of this contract and without notice. Witness our hands and seals:
WITNESS:—
PAYABLE $25 per month.
..... (Seal)
..... (Seal)

Wisconsin Has Lien

Editor Motor World: Can we hold a car on which we have either a repair or supply charge after the owner has gone into bankruptcy? Does a chattel mortgage come before a repair or accessory charge?—Thom Automobile Co., Oshkosh, Wis.

It has been decided by the courts in the state of Wisconsin that the garagemen's lien comes before a claim under a chattel mortgage. 159 Northwestern, page 138, as the Wisconsin law provides:

"Every garageman . . . and every person keeping any automobiles . . . shall have a lien upon and may retain possession of any such . . . automobiles . . . for the amount which may be due for the keeping . . . and the care thereof until such amount is paid, provided, however, that no keeper of any garage . . . shall exercise the aforesaid lien upon any automobile unless there shall be posted in some conspicuous place a card stating the charges for storing the aforesaid automobile, the same to be read at a distance of 15 ft. by any person entering the aforesaid garage by entrances. Violation of the above is a misdemeanor, punishable by a fine of not less than $5 nor more than $25. Laws of 1915, Wisconsin."

It would be impossible to say whether or not the car on which a dealer has a lien could be held after the owner has gone into bankruptcy, as in each particular case it depends on whether the car owner was insolvent when the lien came into being, etc.

As you will not be able to draw up your proof of claim yourself but will have to have a local attorney do this for you, you can explain all the facts to him and let him advise you then, just what your rights are.

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A Good Story To Pass Around—

"He's Some Spitter," Says Reilly

The Man Who Advertised His Breakfast

By Ray W. Sherman

REILLY and Tommy Trumbull ambled leisurely down the aisle of the show, looking at the cars. They had been around the exhibition once and were just taking a sort of second look.

The first time they went around there had been a big crowd in the Henry exhibit and they had not stopped to inspect the new four-passenger roadster that this company had brought out this winter.

But now the crowd had gone and they gave it the once-over.

"Some boat!" said the sole and solitary salesman.

"Yes, some boat!" agreed Tommy.

And then the salesman, after giving them both the once-over and deciding they looked like live prospects, began to give them the story of the famous new model. He was all enthusiasm about it and he wasn't at all bad. He was a pretty good looker, his hair was cut and he didn't chew gum and he talked well, but before he had gone many miles with his oration both Reilly and Tommy had backed away out into the aisle and with a patched-up excuse they beat it along the aisle leaving the enthusiastic salesman with his story half done.

"Darn that guy!" exclaimed Reilly, when they were out of hearing distance. "He had grapefruit, eggs, coffee and a cigarette for breakfast."

"Yes, darn him!" agreed Tommy, brushing specks of moisture off his coat front.

"I don't see where a man gets that habit," added the Callawassa dealer, as he too brushed himself off with his handkerchief, "unless it's his enthusiasm running away with him."

"Some spitter!" said Tommy.

"That lad'll spit himself out of a fortune if he keeps it up at that rate," retorted the dealer. "And he is not unlike numerous other men I have met who seem to think the only way they can make a story effective is to get right up in a prospect's front yard and yell in his ear. I hate that. I never would buy anything from a salesman of that sort, not even if he were the only man in the world who had it to sell."

"If a man has a tendency that way I suppose it is hard to get away from it," apologized Tommy.

"Yes, I suppose it is. I don't know whether a man acquires the habit or is born that way, but I have known some pretty old-timers to have it. They start to talk to you and they get their face right up in your face and almost bite your ear. It has one advantage in that it enables you to know what a man has had for breakfast and tells you right off the bat whether he is a booze-fighter or not, but those are subjects in which I am not vitally interested especially when I am buying goods. The goods are the principal thing in which I am interested.

"Also, so many of these fellows spit when they talk. It's a disgusting thing to have done to you. That Henry salesman spit right in my face several times and I'll bet he spit all over the front of your coat."

"He sure did!" Tommy got his handkerchief out again.

"It's too bad! He seems to be a darned good salesman outside of that and if a desk were placed between me and him I believe he could sell me a car—provided I were a prospect—but with nothing between us and with lots of room for him to walk up on me he simply chases me right away from his proposition.

"If you stop to analyze this matter it will reveal some very interesting data."

Here Reilly stood back from Tommy and the two experimented. They finally arrived at a distance which Tommy said was about as near as Reilly could stand and not make his conversation obnoxious from a spitting standpoint. Without a rule they agreed that the distance was two feet and a half with three feet possibly better.

"There!" said Reilly. "There is some difference between three feet and the distance that salesman chose. I'll bet he had his face within a foot of mine. He may not think it makes any difference, even if the matter were called to his attention, but you just experiment some cold morning and see how far your breath goes. Take a morning when the air is cold and you can see your breath and you will find that it shoots some distance. And no matter how sweet your breath is no one else cares for second hand air.

"You can imagine how such close talking would appeal to a woman prospect. There is a time to get so close you have to whisper and a time not to, and an exhibit at an automobile show certainly is not the time to get your face right up close to that of a woman.

"And these close-up talkers have the further handicap of wanting to chase you. If they get too close you move away and get them at the right distance, and if they keep on talking they keep on chasing you and the further you back up the hotter they come after you until they have you backed right off the boards entirely.

"That salesman back there backed us right out into the aisle and I suppose he can't understand yet why we didn't stay and let him finish his story. I'd like to tell him, but the chances are if I did he would feel insulted."

AND you, Reader—what say you to this? It's a pretty serious matter when a salesman deliberately antagonizes a prospect.

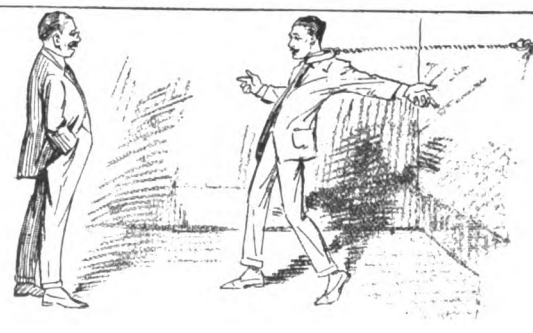
And there's a remedy, too. Reilly has it all doped out and here is the dope.

—Editor

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"I don't know whether a man acquisres the habit or is born that way. He gets his face right up against yours and almost bites your ear.



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Winter Business

He Who Acts Wins

On Your Toes!

EVER see a football game? Ever see the team with the spizz play like fiends to roll up all they could before the first half ended? Didn't they play as though the end of the first half were the end of the world and they never would get another chance to score a point?

That's the situation right now in the motor trade. The first half—Winter—is ending. The second half—Spring and Summer—will soon be here. You will score points in the second half, but if you're a game business man you will play hard for every possible point there is in the first half.

Are you game?

Don't sit down during the rest of the first half and let the Motorist Team walk all over you. You know they'll go to pieces the next half, but why not make the downfall sooner by continuing to hammer hard every minute the year around? Clean up at the finish! On your toes!

Send Out Letters

SHOOT letters to your prospect list, boosting the sale of cars. Tell prospects they may not be able to get cars later on when they may want them badly.

Tell car owners to get their cars in now for overhauling while you have plenty of time. Urge them to be PREPARED for spring. Point out the fallacy of waiting until the last minute for something they are surely going to want later.

Get after your winter accessory stock. Push it hard. Get it down as low as possible. Don't be stuck with a lot of stuff that will tie up money for eight months. Use letters to push these goods.

Personal Work

Supplement your mail work with personal work. Go personally to see men whose cars you believe should be overhauled before the spring touring season opens. Telephone them. Make other work subsidiary. Go hard after them.

Make personal visits on car sales. Get the whole sales force working now just as hard as they naturally will work later on when the flood of spring orders begins to pour in.

Advertise

Other dealers and garagemen may be lying back now waiting for spring. Get the jump on them. Mark yourself as the aggressive man in your territory.

Push car sales, overhauling, tire sales and repairing, storage and anything else that is a part of your business—not overlooking accessories.

Keep your name before the public now when car selling is supposed to be slack. Then your name will be in the public's mind when it wants cars a little later. The time to advertise hardest is when business is hardest to get.

Speed Up

Keep your business at high tension. The rush of spring will compel you to speed up. At present the speeding up must be compelled by YOU. You must do the pushing now. Don't lag. Don't slow up. Don't wait for spring.

Comb the Streets

Send a man around the downtown section to look at cars that seem to need overhauling, tire repairing, repainting or any fixing up. Get the names through the license numbers and go after these people. If you find a man driving an old, rickety car put him in your prospect list and try to sell him a new one.

Hit the Line Hard Now!

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Spring Is At Hand!

THE long hard fight is nearly over. Soon business will begin to pour in whether you seek it or not. Winter is passing, even though the cold and snow may yet be with us.

But because we are assured of business in a few weeks is no reason why we should sit and wait for it. We should GET READY.

While we are cleaning up at the finish of our hard and successful fight for Winter Business let us not slacken a bit but let us direct our energies toward preparation for spring.

Let us clean out our old stock, let us begin to advertise used cars, let us get maximum efficiency into our offices, our shop, our business system, our garage, our curb equipment, our men, ourselves, our dealer organization and every corner of our business.

Be like the great leader of the War of 1870, who, when war was declared, drew from his desk complete plans for every last detail. He was ready. And the war lasted about 30 days.

Lay plans for advertising, selling and business getting. Look ahead, not backward. Remember that preparedness is half the battle for summer business.

Clean up!

SET aside one day for putting your building and equipment in trim. Investigate thoroughly. Write down everything that needs to be done.

Then, lay out a plan for this Clean-up Paint-up work and put someone in charge of it. Rush it through. It may take a week or more—but DO IT.

The building that looks like business is going to get business. Even if you have to borrow the money slick up your building.

The best "con men" are slick lookers. They look like prosperity and get away with it.

Therefore, since appearances count for so much, make your business a good-looker. It will compel the attention of the car owner and draw him to your door.

Before the summer is over you will have more than paid for what you spent on paint and soap and water.

The importance of this Clean-up Paint-up campaign cannot be too greatly emphasized. It has meant the success or failure of some businesses.

The successful dealers in this trade are going to be men of the Clean-up Paint-up type. There is no better time to begin than NOW.

Next week an old friend will bid you farewell. Watch for his message.

Are You Cashing In On These Ideas?

Keep Your Shop on a Profit Basis

Send Out This Letter

Dear Mr. Prospect:

Have you seen a robin yet?

It's early, of course, but the first thing you know Mr. Robin will be here and right on his heels will be fine touring weather

When that robin gets here you'll want your car to be in tip-top shape, and we want you to have it in tip-top shape.

We believe you will look back with satisfaction if you take up NOW the m spring. Have it fixing over will so satisfying in t

A little later w ists will want t simply won't be patrons want it

But we can giv shop has been pu and WE'RE REA as much as possi greater satisfacti

Phone James 1

Here's One Dealer Who Is

Ford
THE UNIVERSAL CAR

The first thing you know Mr. Robin will be here, and right on his heels will be fine touring weather.

When the Robin gets here you'll want your car to be in tip-top shape, and we want you to have it in tip-top shape.

A little later we shall be rushed with work. But we can give you excellent attention now. We want to cut down the spring rush as much as possible, which means a lower cost per job and greater satisfaction.

Maudlin Motor Co.
Ripon, Wisconsin

The Maudlin company read the letter reproduced above in the January 31 issue of Motor World. Then it ACTED—sent out the postcard that is illustrated here

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Accounting and Business System

Returning Goods

By T. W. Snead

Editor System Department: We return an ignition head and six pistons to the X Motor Car Co. for credit. The company credits our account with $30, the amount of credit due on the goods and issues a credit memorandum to us for this amount.

Mr. Smith returns three spark plugs which we recently sold him stating that he could not use them and asking us for credit.

We loan the Green Used Car Co. $25 for which said company gives us a three months' note. We discount the note at the bank—Dudley L. Child, New York Motor Sales Corp., Troy, N. Y.

You say that you have returned an ignition head and six pistons to the X Motor Car Co. for credit. When these were shipped to the X Motor Car Co. an entry should have been made on Form 1 charging the X Motor Car Co. $30 and credited under All Other Accounts on the credit side of Form 1 your Stock Account—$30.

In other words, you have charged this company and you have taken out of your stock, which is a debit account, $30 worth of parts and accessories, if that is the head under which you have carried these things. The credit memorandum that is sent you is only an acknowledgment from the X Motor Car Co. that the charge of $30 has been allowed by them and that this amount will be deducted from their statement to you or they will send you a check for this amount.

Now you, no doubt, are indebted to the X Motor Car Co., which account will show under your Accounts Payable, which is a credit account. As an offset to this account, which we will say amounts to $150, you will have this charge of $30, which, when it is being posted on your account on Form 1, should be charged to the account on which you show the credit of $150. When you draw your check to settle the X Motor Car Co. account you draw it for $150, less the charge of $30, or $120.

Mr. Smith returns three spark plugs which we will, for example's sake, consider that you sold for $1 per plug.

These three plugs appear on the charge; when Smith returns them you will have to credit him with a like amount, which we will say is $31.

When they are returned you would make an entry on Form 1 and charge your stock account under the All Other Accounts column on the form on the debit side with the cost of the plugs, which we will say was 60 cents per plug, or $1.80.

In other words, by charging your stock account you have shown that these have been placed again in your stock for sale. Now, under the customers' Credit Account on the credit side of Form 1 you will have to credit Smith with $3, which you do, and in explanation column say Spark Plugs returned for Credit. Now you have a credit of $3 under Customers' Account and you only have a charge of $1.80.

When this sale was originally made your sales account or income for parts and accessories was $3 and, accordingly, the profit made on the sale of the plugs went into this department. So, accordingly, under All Other accounts you have charged income, parts and accessories with $1.20, which will reduce the profit in the income in the month in which you are accounting.

You enter this charge under All Other Accounts on the debit side and at the end of the month this charge for income, parts and accessories you will subtract from the credit income, parts and accessories on the credit side of Form 1 when you begin to figure your profit in that department for the month.

You loaned the Green Used Car Co. $25, which is entered under All Cash Paid on Form 2 when you draw your check, and on the debit side of Form 2 you will enter the $25 opposite the account called Notes Receivable—Green Car Co.

In other words, your assets have increased $25 in the shape of a note and your cash has decreased $25. Now you take this note to your bank and discount it in order to make use of these funds. After the bank gives you credit for $25, plus the discount, the entry would be made as follows:

Under All Cash Received on Form 1 you would enter the $25, or the amount you received credit from the bank, and under All Other Accounts on the credit side you would place an account called Notes Receivable—Discounted.

When you come to make up your statement of Assets and Liabilities you would find an asset on Form 2 in the shape of Notes Receivable, Green Car Co., but from this you should subtract the account that you find on the credit side of Form 1 called Notes Receivable—Discounted. You held this note in your assets, but you also show that you have discounted this note and are still liable to a bank for its payment.

Gasoline Sales

Editor System Department: Please send me sample sheet of your Simplified Bookkeeping System.

The system I now use tells me what I want to know about my business, but it is too complicated.

With your system, can I tell just how many gallons of gas I have sold without picking them out from the rest of my sales and, in other words, keep my different departments separate, as I now do?—C. M. Phinney, C. M. Phinney's Garage, Russell, Kan.

We are forwarding these sheets and also descriptive literature covering the Motor World Simplified System of Accounting.

If you will refer to Form 1 you will note that on the Credit side under the Income Account is provided a column for gasoline sales.

There is no provision on this form to tell you just how many gallons of gas you have sold during the day, but a good many garages when they enter a sale in this Income column for gasoline make a notation on the same line in the blank space just to the left of the number of gallons that constitutes this sale. By adding these figures at the end of the day this will give you the total number of gallons sold.

Bank Balances

Editor System Department: How do you take care of the bank balance each month? Do you bring it forward in any way?

Also stock on hand, tools, furniture, fixtures. How do you take care of these?—H. J. French, Fort David, Tex.

There are no special column provided to show the bank balance, but a good many garages and dealers show it in the blank space just to the right of the All Cash Received column on Form 1; that is, they show the total amount of cash on hand added to the cash received as a memorandum in this blank space, and by referring to Form 2 they find the total of the All Cash Paid and bring it over to Form 1, subtracting it from the cash on hand, which will show your bank balance day by day.

It is not necessary to enter your Assets and Liabilities on Forms 1 and 2 before you start the system, but it is necessary that you find what the Assets

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and Liabilities are, an example of which you will notice in column 3 of Table 2 in the System pamphlet per the statement of Assets and Liabilities.

Here we show what the Assets and Liabilities were when we started the system on Jan. 1, and each of these accounts is given a sheet in the back of the binder, using Form 3, and you will notice the total Assets equal the total Liabilities.

The result of what happened during the month will be found on Forms 1 and 2 at the end of that period, and these results are added to or subtracted from the Assets and Liabilities that you started out with on the first of the month.

For example, if your tools, etc., carried under equipment amounted to $1,100 on Jan. 1, and by referring to the first column in Table 2 you will notice that your repairshop purchased $1,700 additional equipment which, added to the $1,100 that you started with on Jan. 1, will make your repairshop equipment on Feb. 1 $1,800. Thus you would treat all of your Assets and Liability accounts.

Time Payments

Editor System Department: We use the Guaranty Securities' Co.'s plan in stocking and selling cars, and would like to know if this account can be kept on your forms? In selling to the distributer, 10 per cent is paid down upon delivery of cars, accompanied by a time draft for 90 per cent, which is discounted by the above company at 80 per cent of its face until such time as it is due. In selling to a purchaser one-third is paid cash and the balance is paid in monthly instalments or deferred, according to who the purchaser is.—Anderson Motor Sales Co., Bishopville, S. C., Wm. M. Reid.

Let us assume that a car costs $1,000, and when you receive it you would make an entry on Form 2 of the Motor World System as follows:

Under All Cash Paid, on the credit side, you would draw your check for $200, which is the difference between the cost of the car to you and the amount upon which you will obtain a loan from the Guaranty Company. This is 80 per cent.

Your credit under All Cash Paid would be $200 and under All Other Accounts on the credit side you would enter $800 to an account called Guaranty Securities Corp.

On the debit side of Form 2 on the Stock Account you would enter the cost of this car, $1,000. You have now shown that you have in your stock an asset, or a car, worth $1,000, and that you have paid $200, and that you are liable to the Guaranty Securities Co. for $800.

The car is then sold to a purchaser for $1,200, and he pays one-third of the price and the balance is paid in monthly instalments, according to the purchasers' credit.

This entry would be made on Form 1 as are all sales, and assuming that he pays $400 in cash this would be entered on the Debit side of Form 1 under All Cash Received, and under Customers Account-Charge amount you would enter $800 charged to customer, and on the Credit side of Form 1 under income car sales you would enter $1,200.

Each month as a further amount is paid on this charge of $800 you would enter the cash in the All Cash Received column and credit the customer on the credit side of Form 1 of the customer's account, which will gradually reduce your debit made originally under charge account, customer, on the debit side of Form 1.

Now when your time draft became due, and we will consider that this was paid with one check, you would draw your check on Form 2, entering the amount under All Cash Paid, and under all other accounts on the Debit side you would enter the amount of $800 to the account called Guaranty Securities Corp. —Account Payable. This debit to accounts payable would offset the credit that you made in the month or two months previous on the credit side of Form 2 when you received the car and acknowledged that you have done so through the Guaranty company to the extent of $800.

For Big Business

Editor System Department: We use a duplicate ledger, day book and cash book. Our business amounts to $40,000 per year, one-half of which is charge accounts. We mail 150 to 200 bills per month.—G. T. Lundlee, Tonopah Electric & Tire Co., Tonopah, Nev.

Form 1 of the Motor World System will take the place of your day book and your cash book for making a record of sales. The ledger accounts are carried in the back of the binder using the same sheets that are used for customer's accounts, but if you have in the neighborhood of 200 accounts you would, of course, have to carry these customers' accounts in a separate binder, as that number would make the binder which holds Forms 1 and 2 rather bulky.

It might interest you to know that there are over 2000 Motor World Systems in use to-day, and the results are most gratifying. However, we do not wish any one to install the Motor World System unless it absolutely fits their business. Too many concerns have made the mistake of making their accounting system complicated when it was not necessary, and just as many concerns have made the mistake of making their business fit the system, which is absolutely unnecessary when it is just as easy to make the system fit the business.

Accounting Scrap

Editor System Department: I have installed your Motor World Simplified System of Accounting, and think it is very good. As yet I have had no trouble using it, but I have a transaction to take place in a few days which I am not quite sure how to handle.

During the last year I have saved the old plates from scrap storage batteries and shipped them yesterday. I have my business divided into your departments, Rental Recharge and Repair Department, Parts and Accessories, Battery Sales and Electrical Repair Work Department. Of course, the junk plates have been collected through the rental recharge and repair department, but if I credit that department with the whole amount, which will be in the neighborhood of $100, it will make that month show exceptional profit, whereas the profit has been accumulating for the past 12 months.—C. W. Cox, C. W. Cox Electric Station, Perry, Ia.

We would suggest that you solve the problem by placing this amount to Miscellaneous Income.

We are particularly pleased to see that you are very careful not to over credit any of your departments with income that is not actually carried by that department, and presume that you are just as careful about your expenses.

At the end of the month do you figure out the percentage of expense and income in the various departments? Do you figure the percentage from month to month and compare the increase or decrease with the month before? For example, if your income in this month in your rental, recharge and repair departments were $200, and the expense as shown by your Form 2 was $100, then it cost you 50 per cent of your income to make this showing. If the per centage the month before was 40 per cent you have either increased your income or you have decreased your expense of operating this department.

Texas Has 197,678 Cars

AUSTIN, TEX., Feb. 17—Statistics are available of the total number of automobiles in Texas on Jan. 1, 1917. These show that there were registered 197,678 cars as compared with a total of 137,807 on Jan. 1, 1916. The increase for the year was 44 per cent. It is the expectation of dealers that the present year will show a still greater percentage of increase than last year, but, figuring at 44 per cent, there will be at the end of 1917 a total of 288,000 automobiles in Texas.

Increase Capital and Declare Dividend

DETROIT, Feb. 13—The Federal Motor Truck Co. will increase its capital from $500,000 to $2,000,000. The increase entails distribution of a stock dividend of 100 per cent through transfer of $500,000 of surplus to the capital account. All of the officers and directors were re-elected.

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REPAIRSHOP SHORT-CUTS

From the MOTOR WORLD Road Man

(NO. 1061) AUXILIARY JACK

The feature of this auxiliary jack is its simple and rigid construction. It is triangular in form, and made of wooden pieces bolted together in the manner shown. The apex is leather covered to prevent injury to the car.—H. A. Ammerman, Marmon-Buick Sales Co., Urbana, Ill.

(NO. 1062) INSIDE BORING FIXTURE

A boring fixture adapted to many uses. A cast iron platform, held in the tool post of the lathe supports the tool holder, which carries the cutting tool at the outer end. The tool holder is hollow, and holds a steel rod that is pressed against the cutting tool by a set screw at the outer end. Due to the sturdy construction, and the method of supporting the tool holder, the tool is not only rigidly held, but may be readily adjusted.—H. A. Ammerman, Marmon-Buick Sales Co., Urbana, Ill.

(NO. 1063) VALVE TAPPET LEVER

The push rods of the overhead valves on the Buick may be removed in an instant by the aid of this lever. It is steel, about 8 in. long, and bent and notched to grasp the tappet as shown, permitting it to be raised, and the push rod lifted out.—J. E. Trotter, Buick Motor Co., Indianapolis.

(NO. 1064) REAR WHEEL PULLER

This puller is used to remove the rear wheels of the Buick. The wheel flange and axle are removed and the puller bolted to the flange bolts. A steel button is then placed in the rear axle tube, and the pressure applied by the central screw. By having several sizes of steel buttons, and making the flange bolt holes oval, this puller may be used on many cars.—J. E. Trotter, Buick Motor Co., Indianapolis.

(NO. 1065) VALVE CAGE GRINDING

Valve cages on the Buick may be quickly ground to a seat by the aid of this tool. It is ¼ in. steel rod, bent in the form of a bit brace, and threaded at the lower end. The valve cage to be ground is caught between two nuts on the threaded end, and the cage is ground to a seat the same as valve.—J. E. Trotter, Buick Motor Co., Indianapolis.

Don't Wait for the Road Man

It may be years before the MOTOR WORLD *Road Man visits your shop because of the many thousands of shops. But why wait until then? If you have something good, do not deprive others of the benefit they would derive from it. Send it in now—it will only take a moment's time—and have the satisfaction of knowing that you have done your bit toward improving repairshop methods.*

(NO. 1066) FRAME STRAIGHTENING.

Bent frame horns may be pulled back into place by a chain, providing the force is applied in the proper place. The method of attaching the chain is shown, and the force is applied by twisting the chain with a steel pinch bar. A jack, braced against wooden blocks may be used to straighten the side members of the frame.—J. E. Trotter, Buick Motor Co., Indianapolis.

(NO. 1067) WHEEL ALIGNMENT TRAM

The brace rod from an old windshield may be made into an excellent wheel aligning tram. After cutting the rod to a length about 2 in. less than the distance between the front wheels, a brass ferrule is soldered to one end. This ferrule is then drilled and tapped to carry a thumb screw in the manner shown. The adjustable part of the tram is a piece of ¼ in drill rod, marked off into 1/16 in. divisions as shown, and placed within the tube.—J. E. Trotter, Buick Motor Co., Indianapolis.

(NO. 1068) BATTERY WORK BENCH

The ordinary flat top bench is not well adapted to battery work, as acid and water, when spilled, are not absorbed. By means of a special bench, having a concrete basin filled with sawdust, battery work is rendered much cleaner and neater. The sawdust instantly absorbs any acid that is spilled, and turns black when saturated, indicating that it must be renewed.—J. E. Trotter, Buick Motor Co., Indianapolis.

(NO. 1069) COMBINED WRENCH AND SPRING COMPRESSOR

Though designed primarily for replacing the clutch bolt on the Buick D-28, this tool may be adapted to almost any job that requires a spring to be compressed before the nut is replaced. The wrench proper is a U-shaped piece of steel, bent to just fit the face of the nut, and held together by a cross strap. A rod, placed in the manner shown, permits a wooden lever to be used to compress the spring, after which a steel bar, stuck through the legs of the U is used to screw the nut in place.—J. E. Trotter, Buick Motor Co., Indianapolis.

(NO. 1070) WIRE BRUSH FOR CLEANING

Gasoline or kerosene will not remove the caked and baked dust, dirt and grease from an old engine. In such cases the use of a heavy wire brush facilitates the work. This brush should not, however, be used on finished surfaces.—J. E. Trotter, Buick Motor Co., Indianapolis.

Ohio Dealers Driving Cars Home

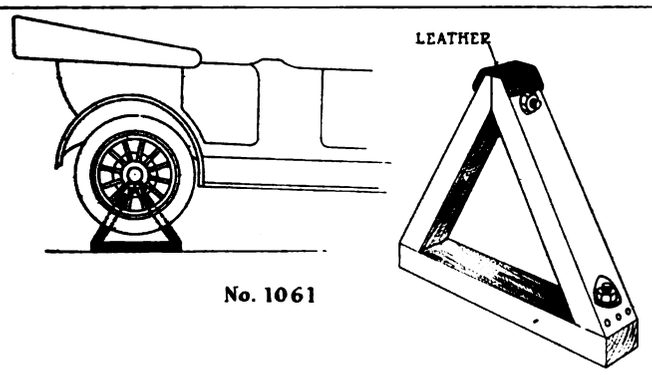
COLUMBUS, O., Feb. 17—Distributers and dealers in Columbus and all Ohio, Indiana, western Pennsylvania and Kentucky are busy driving cars from Detroit and other factories in readiness for the spring demand. Owing to the scarcity of shipping facilities and congestion on railroads, factories have been unable to move their finished cars as formerly, and with the roads frozen dealers have been taking advantage of conditions.

It is not an uncommon sight to see a fleet of from a dozen to 50 cars driven from the factory and going through cities and towns en route. All of the available drivers are collected by the dealer and taken to the factory to help get the cars to their salesrooms. All of the Columbus dealers have taken that means of securing cars, and although it is a more expensive method than shipping they are assured of deliveries.

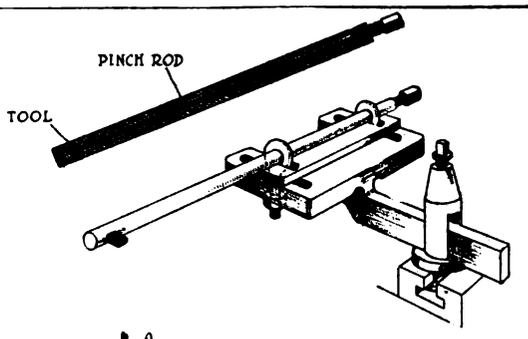
The Hudson company drove 125 cars to Columbus from the factory, and from this point shipped them to various parts of the country. Available cars in Columbus are more numerous than in Detroit.

Another feature is that several train loads of automobiles have been shipped to Hocking Valley points on open cars.

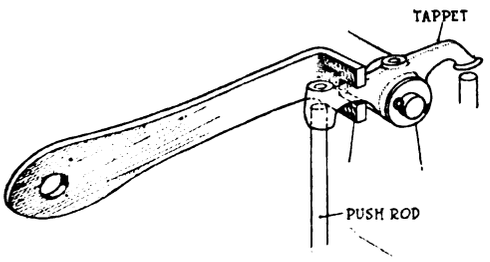
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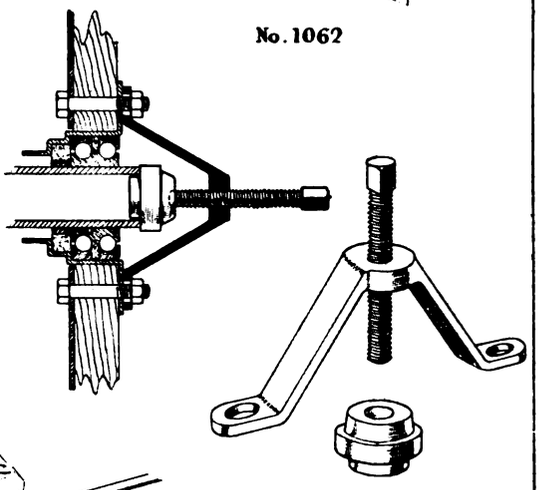
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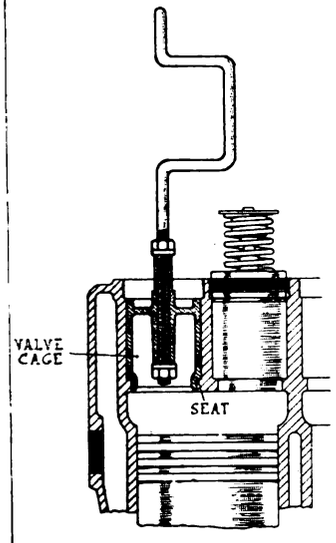
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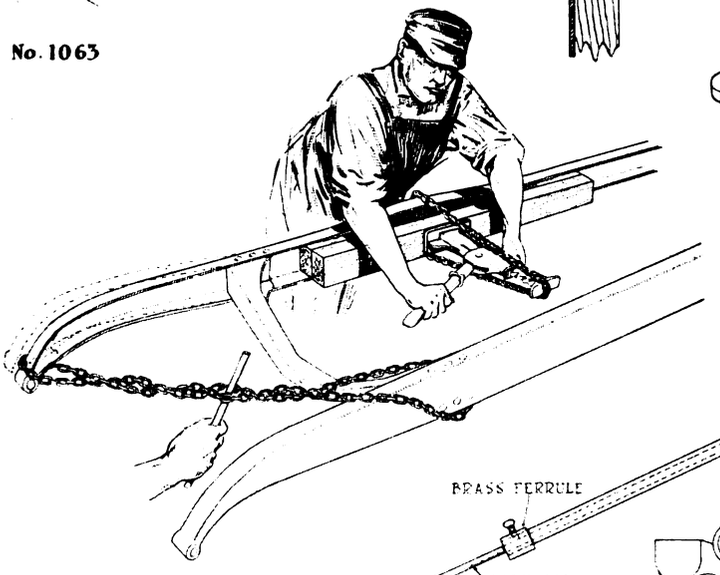
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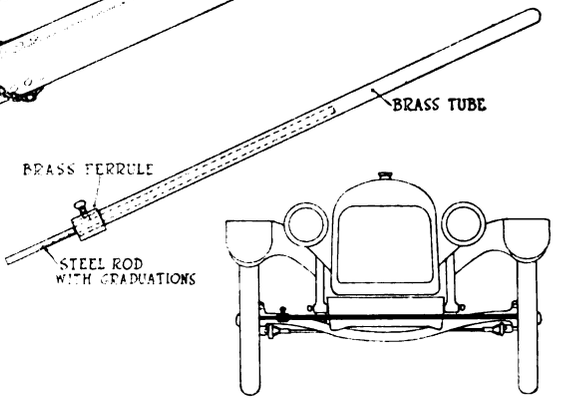
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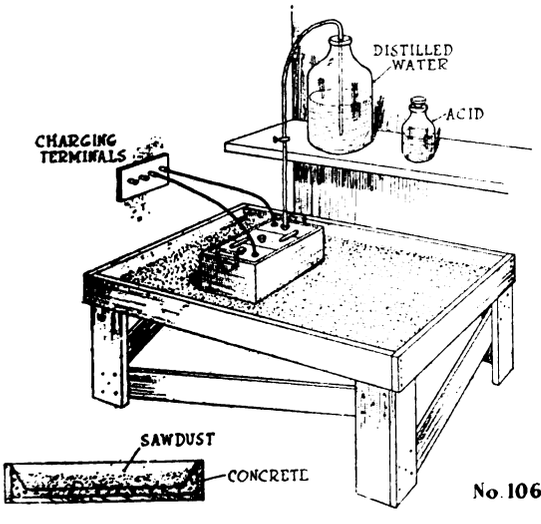
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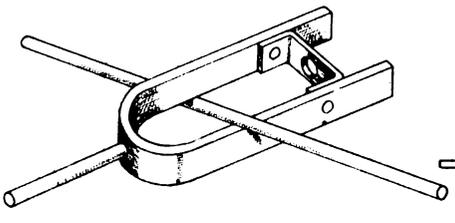
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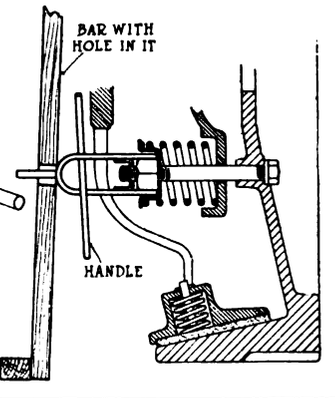
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50% Increase For Hartford

Much of it Will Come From Bumper Crop of The "Filthy Weed"

HARTFORD, Feb. 17—The capital of Connecticut is a thriving manufacturing and insurance center of 115,000 population, located at the head of navigation on the Connecticut River and in the heart of a fertile country. It is noted for the high quality of its manufactured product, much of which is absorbed by automobile builders in the Middle West. Its insurance interests take first rank.

Hartford is the distributing center or clearing house for Hartford County from an automobile standpoint. Cars for distribution through Hartford are received either direct by freight or express from the Middle Western factories or from New York or Boston. However, of late, New York seems to be favored and somehow or other Connecticut is being regarded as detached from New England which, of course, it is not.

Connecticut is one of the richest States in the Union. Its capital city, which is also the county seat of Hartford County, is a wealthy community. By reason of its proximity to New York the influence of the metropolis is directly felt. Hartford's automobile dealers are live wires.

Registrations Jump 43 Per Cent

That Connecticut is an automobile buying State is evident from the gain in registrations. The Secretary of State's office gives the 1915 registrations as 33,875. The 1916 showing was 48,289, or an increase of 43 per cent.

Hartford dealers in 1916 sold 5435 automobiles, and their allotment for 1917 will be 8139, or an increase of 50 per cent.

The one cloud hanging over the heads of Hartford dealers at this time is the freight embargo. Cars are being run over the road from New York as often as possible and every dealer in the city is stocking up for the spring trade. All indications point to an unusually heavy demand this season.

This winter has been something of a surprise and there have been fewer salesmen about the warm headquarters taking life easy and swapping stories. Every individual in the various organizations has been on the hop from morning until night for the very good reason that while one fellow is resting another is taking his business away from him. By reason of this activity Hartford car sales this winter have been very satisfactory.

Once a year Hartford dealers hold a show of sizable proportions in the State Armory. This year 183 pleasure cars were shown. There are 34 car distributers in Hartford at this time and all of them have salesrooms.

These 34 dealers have a territory to work in approximating 212,000 population. One-half of this is in the city of Hartford. Fifty per cent of the trade then must come from the agricultural sections.

Connecticut, and more especially Hartford County, differs from Ohio, say, in its production. The Nutmeg proposition compared to Ohio is intensive farming. A Connecticut farm would be a backyard in Ohio or some of the other Middle Western States. And to go farther West this Down East farm would be like a pistol range.

Show Draws from 20 Miles

The show in Hartford has a good effect on the trade for a radius of 20 miles or more. Some of Connecticut's trade goes to Massachusetts, or, to be specific, to the up-river city of Springfield, 26 miles from Hartford.

Tobacco is the principal crop. The weed has driven out food plants because of the larger amount of money to be derived from a crop, and the fact less labor is required throughout the season. Hartford is the clearing house for Connecticut tobacco. Lower State Street is lined with dingy buildings suggesting dry rot, yet which within are hives of industry all devoted to the sale of tobacco.

Some of the largest houses in the country maintain branch or purchasing offices in Hartford or even in the smaller towns.

The Hartford County tobacco grower wants a car. Perhaps he has never had one or possibly he wants a better one. This is the way he goes about it. He knows what last year's crop yielded and he can estimate for the coming season, provided the summer electrical and hailstorms give him a wide berth.

That new car, how will he get it when there are obligations to be met? Clear away a little more land and set it to tobacco, the proceeds will buy a car.

The tobacco farmer of to-day has his twin six and his man to run it. He is living better than he ever lived before, his sons and daughters go to college and he is a better prospect for the dealer than ever. Hartford County tobacco growers are prosperous and they have reason to be with the weed going at 32 cents a pound where formerly 18 cents was a fair price.

Practically all growers within a radius of 15 miles come to Hartford, and when they want cars here is where they get them, save in those cases where they are referred to a sub-dealer.

Truck Gardeners Are Riding, Too

Truck gardeners, like the tobacco growers, are becoming more prosperous every year, and they, too, ride about in good cars and even use trucks to deliver their wares. They are even introducing mechanical tools to overcome the shortage of labor. The tractor is on the way. The truck gardeners make their money in early produce because the prices are high. When the market is flooded goods are cheap. Windsor utilizes its tomato crop by canning it. The truck gardeners are all close to Hartford, being located in East Hartford, South Windsor, Glastonbury, West Hartford and Wethersfield. East Hartford raises tobacco as do all the other towns with the exception of West Hartford.

It follows that with prices continuing high and a big demand for produce the farmers are stowing away a bank roll. However, they like to let the light shine on it once in a while, and the real dent comes with the purchase of a car. It is doubtful if there is a farmer within 20 miles of Hartford but is well known to Hartford agents. They know his rating.

For the most part Hartford dealers cover Hartford County and are now in the midst of a mid-winter campaign. The show has occasioned no let-up because prospects have been secured that otherwise might be overlooked. With inviting quarters and a service station to keep cars in order, the Hartford dealers feel they are in a position to care for their territory.

Of the 34 dealers some control the whole State as, for instance, the Britton Co. with the Stearns-Knight, and the A. C. Hine Co. with the Chalmers and Oakland. The Elmer Automobile Co. has stores in Hartford, Torrington, Winsted, Willimantic and Manchester, the latter a silk mill town of 13,641 population. Russell P. Taber, Inc., has four counties of the State and the local branch of Willys-Overland, Inc., looks over the whole State save Fairfield County. But in the

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main the business comes from Hartford County. New Britain, a busy manufacturing community, is covered by most of the Hartford dealers direct or else through sub-agencies.

Combined sales and service departments, that is, where both are under one roof, exist in one-half of the agencies in Hartford. The other half occupy separate buildings for sales and service, as, for instance, in the cases of the Harrington-Hudson Co., Elmer Automobile Co., Hartford Motor Car Co., and Hartford Buick Co.

Big Building Expansion

During the past year new service buildings were put up by S. A. Miner, Pierce-Arrow distributer, and the Britton Co., a three-story brick, steel and concrete affair. Russell P. Taber, Inc., Reo distributer, and the Universal Auto Co., Franklin distributer, have adjoining buildings of like design, three stories and basement. The Packard branch moved into a commodious two-story sales and service building recently, as did the Whaley Motor Co. The new four-story Overland sales and service building is in process of construction and will be ready in the spring.

New salesrooms have been opened by the Acme Motor Sales Co., a newcomer, with the Premier and Marmon; the Capitol City Auto Co., Winton; Packard Motor Car Co. of New York; Reid Motor Co., with the National; Thrall Colton Motor Car Co., with the Kissel; Parsons & Co., with the Dort, and S. A. Miner, with the Pierce.

Several agency changes have taken place. The Maxwell has twice passed hands and is now with the Whaley Motor Co.; the Locomobile has passed to the Detroit Electric Car Co. of Connecticut. The Heublein Garage Co. dropped the Pullman and taken on the Liberty; Kilby & Hamilton the Halladay, Thrall Colton Motor Car Co. the Kissel, and Parsons & Co. the Dort. Late comers are the Paterson, handled by Dave Greenberg; the Marmon and Premier, by the Acme Motor Sales Co.; the Capitol City Auto Co. with the Winton, the Hartford Motor Car Co. with the Hal Twelve, and the Jordan Motor Sales Co. with the Jordan.

Hartford is in the throes of prosperity. Every factory is working full time and new enterprises are under way. War babies will permit some to purchase new cars who would otherwise continue a season or two longer with the old equipment. In point of number of sales Ford leads. During the show the Elmer Automobile Co. sold Fords on a deferred payment plan, the paper being handled by a local bank. A large percentage of sales this season will obviously be among the lower priced cars. Shop wages are higher now than ever and savings bank deposits are increasing. The bank clearings in 1915 were $355,045,698.97 and in 1916 $429,096,141.10.

The deferred payment plan is finding favor, and those who avail themselves of this proposition may be classed as the ones who would ordinarily purchase a used car. The tendency this year more than ever before is for the owners of the lower priced cars to trade them in against a better and larger machine. Hartford dealers are endeavoring to get away from trading, but most of them are still doing it. They have systematized their used car departments by making them separate from the new car business.

Hartford's "Specials" Are Alluring

Bright Colors and Extra Equipment Spring Into Prominence

HARTFORD, Feb. 17—A new merchandising note is apparent in the Hartford show, which was brought to a close to-night. It is the more conspicuous display of brightly painted cars, special models developed by Hartford dealers. These are finding a ready sale, which fact is exerting a powerful influence on New England dealers to go in more strongly for work of this class.

On the whole, the show is beautiful, though at times it may not be as easy to see all the cars in all the exhibits as might be desired. Spaces are for the most part small, and the ever present tendency to crowd every car possible into a space is as apparent here as at any other show.

In a number of instances, however, dealers have quite apparently resisted this tendency, and the effect is in marked contrast to other spaces. In the majority of cases dealers have attempted to introduce a merchandising flavor by the use of rugs, tables and special decorations, and where they are used adjacent spaces without such adjuncts look mighty bare.

But the most important feature is the trend toward special painting. Russel P. Taber, Reo distributer, has one model which he styles a Spring Special, a roadster finished in the new spring green with canary yellow wheels and running gear; it is attracting a great deal of attention. Another is a touring model done in what is styled Japanese Lake, a beautiful shade of maroon with red wheels and running gear. Taber says that in view of the interest these cars have aroused he will have a number of standard models done over for regular sale.

The A. C. Hine Co., Oakland distributer, also has some specially painted cars on view, one a roadster in violet and yellow and the other a green touring model fitted with striped slip covers. D. B. Roberts, of the Hartford Buick Co., sold two special models the first night they were exhibited.

Roberts has adopted a novel means of driving home the advantages of the overhead-valve motor. He has three large wood models showing the three constructions, T-head, L-head and overhead. In addition, he borrowed an eight-cylinder V-type aeroplane motor with overhead valves from the Curtiss company and an eight-cylinder marine motor with overhead valves from the Sterling company. These carry placards calling attention to the overhead valve construction and inviting attention to Buick construction.

Few chassis are on view though New England palpably is a section of mechanics. Taber has a Reo chassis up on stilts where every part is plainly visible. The Hine company has an Oakland chassis mounted at each end in mammoth shaft hangers and suspended so that it can be turned completely over by anyone. This is a great drawing card.

The show holds passenger cars, trucks and a few accessories. The passenger cars are in the center spaces with the trucks arranged around the sides, and the accessories are sandwiched in between the trucks.

The Hartford Automobile Dealers' Association promotes the show, and the management is in the hands of a committee.

Coast Has Dealer Service Bureau

SAN FRANCISCO, Feb. 17—The Motor Car Dealers Service Bureau of California has been established and has opened offices at 1111 Post Street. The bureau will operate in practically any capacity for Pacific Coast dealers. It will furnish lists of cars sold, assist in obtaining distributers and dealers, handle adjustments, claims, legal matters and collections, secure signatures to contracts, handle advertising and publicity, secure parts and close contracts, etc. J. H. Schaniel is director of sales, other members of the staff being J. H. Morris, legal department; F. O. Andres, signs and painting; Hugh McCaffrey, collections and claims; George W. Frank, printing and stationery; Miss Emlie Skalicky, letters and multigraphing.

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Editorial Observation

Shortsightedness

THE factory is not always inclined to look at its product through the eyes of the dealer. The mechanical construction of cars has come to be looked upon as strictly an engineering proposition, a factory job.

When the factory has turned out a car that will run it is apt to call it a day's work and let it go at that. It is apt to take the view that it is a dealer's business to sell cars, not to give advice as to how the cars ought to be built.

Yet the dealer is the bumper between the factory and the public; the dealer absorbs all the shocks.

And the dealer, better than anyone else, is in a position to know how a car ought to be built, for it is the dealer's job to keep that car running.

The Dealer Is the Fixer

If the car will run when the dealer gets it and turns it over to the purchaser, and if it won't run right in a week or a month or a year, it's up to the dealer. He has got to find out what is wrong, why it's wrong—and fix it.

Who, then, is better qualified to tell the factory how to build that car?

Take one concrete case: A factory with a national reputation is turning out a car now which has an inherent fault. The fault will not show up for six months or a year; but it will show up eventually.

The dealer knows this because he has had to fix the trouble a hundred times. It is costing him $80 every time. And rather than have a car go out wrong he is tearing down every car as it comes from the factory and making it right.

Nor is that the end of the story. This dealer has perfected a way of remedying the trouble which would cost the factory just $2 to do right in the first place.

This ought to be good news for the factory. But is it?

It is not.

Factory Ignores the Dealer

The factory will not pay any attention to this dealer. Perhaps the factory is saying to itself: "It's the dealer's business to sell cars. What does he know about building them?"

This is a condition that is not confined to any one make of car. Other dealers handling other makes have the same trouble to put up with. Their factories won't listen to them.

If the factory would develop good, clean, honest, conscientious dealers it has got to listen to its dealers. These are the men who have got to keep the cars running or the factory won't run.

No permanent success can be built in business except on the foundation of service. Yet no dealer can afford to spend $80 on a car before it is delivered to the customer to prevent that customer coming back in a little while with a wail. Nor can he reasonably be expected to charge a customer afterward for the faults of the factory.

The Remedy Is Simple

In this case the remedy is simple. It only means that the factory must slightly alter its construction methods and turn out a better car.

It means that the factory should recognize the weight the dealer's word carries.

And if it doesn't, it is going to lose one of the best dealers it has.

Factories can learn a lot from their dealers; they can learn how to build better cars. And the time has come when the factory has got to listen to the dealer.

What Is a "Job"?

WHY must a car be called a "Job"? Why must anything connected with the selling of motor cars and accessories be called a "Job"?

The term is becoming so familiar that even the newsies on the streets are commencing to use it—and few salesmen consider themselves quite the thing until they can refer to a beautiful sedan or a limousine, or maybe a spark plug, as a "job."

Surely the term is not used because of the want of a better one. It has just become a habit—a sort of see-what-I-know-about-the-trade habit.

Let's cut it out.

If we don't cut it out we may some day find ourselves in the position of a particular salesman.

He had to explain what part of a coupe a "job" is.

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2000 Motor World Systems

Editor Motor World: It occurred to me that it might be a matter of interest to you to know that up to this writing we have manufactured and distributed upwards of 2000 Motor World Simplified Systems of Accounting. I consider this an unusually good showing, and, as a matter of fact, *this is the largest number of individual systems that we have ever manufactured.*

I attribute the great success with which this system is meeting: First, because of the simplicity (yet efficiency) of the system itself, and second, because of the clear, concise manner in which you have presented it to your readers. In my opinion you have opened up an avenue whereby a merchant can install an efficient system of bookkeeping but at the same time eliminated the usual drudgery and technicalities that have generally been included in most systems. —Tallman, Robbins & Co., P. L. Tallman, President, Chicago.

POOR MANAGEMENT

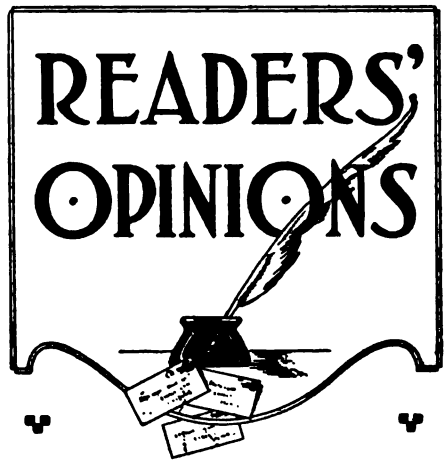
Editor Motor World: I wish to pat-you-on-the-back for what you have done for repairmen during the past year. Your Repairshop Short-cuts is one of the best things yet. If the mechanics will only read and profit by them there need be no dearth of good repairmen in the future.

There is one thing which gets my Billy about which I wish to speak. It is the class of men who are managing the majority of garages. Even the finest looking places have such poor management. They put up with first-class wind-jammer, roust-about repairmen who are not dependable, nor expert.

Then when a quiet, unassuming fellow comes along they offer him 40 cents an hour or nothing. They do not seem to want quiet, clean-cut, dependable men. If the average so-called expert mechanic is worth $25 a week I know some who are getting $18 to $22 a week who are really worth $30. But they are quiet, unassuming, modest fellows who do not even know how to peddle Bull. Bull is getting most of the $25 a week men, at least those whom I have met.

Advertise for Men

If there are any garage owners who really desire to obtain really competent repairmen; men who are strictly sober, steady and thoroughly dependable, why is it they do not advertise the fact? If they would state what they want and what they would pay such a man, they could get them. Then if they would only make up and do business all winter long instead of hibernating and putting their men on part time they could keep them.



Pay them a bonus every 6 months for staying on the job and treat them humanly. I am a repairman and I have been all over the country, so I know what I am talking about. I have suggested ideas for winter business, repairshop, stockrooms, display cases, show windows, advertising, only to be told—"Yes, it looks good, but it wouldn't pay —You see this town, etc.

"You see we have no roads here in winter and you can't sell cars during bad roads, etc. This town will not buy high-priced stuff, you got to handle cheap goods. The other guys cut and we've got to do it. No, you can't sell for cash; lose all your trade in a month, etc. Wouldn't work here and numberless others have I listened to in my time."

On the other hand, I have seen all my ideas, one by one, tried out successfully by men in different parts of the country. But not one of the places where I have worked came up out of the ruck.

Now! I would like to hear from some proprietor who has waked up; who does winter business; who sells for cash; who runs his repairshop for cash only; who gives no discounts at any time; who keeps his place inside and out scrupulously clean; who tells the honest truth about his shop, the cars he sells and also his supplies, and who has tools for every kind of a job so the repairman has no excuse for bum work. I carry more wrenches and small tools than are found in most garages in small towns under 25,000 pop.—C. R. Pierson, Salineville, O.

Texas Dealers Organize

AUSTIN, TEX., Feb. 17—A meeting was held here Feb. 1, which was attended by a number of dealers and accessory men throughout the state and preliminary steps were taken toward organizing a state association of dealers.

One of its purposes will be to correct certain evils that now exist in the automobile business, which can only be done by co-operation on the part of the dealers. The closer personal relationship which this organization would bring about would also be of much benefit. Since the opening of the present session of the legislature, the lack of organization among the dealers of Texas has been particularly felt, as a number of measures have been introduced which relate directly or indirectly to the trade. Owing to this lack of organization the dealers have been unable properly to present to the legislature matters which affect their interests.

It was decided to hold a second meeting at Dallas on March 7 and 8 for the purpose of perfecting a permanent organization. At this meeting officers will be elected. The following temporary officers were elected at the meeting here:

H. O. Adams, Dallas, president; C. L. Zutavery, Dallas, secretary; Ben M. Barker, Austin, treasurer. Vice-presidents—C. H. McFall, Wichita Falls; F. F. Guyderson, Houston; F. F. Weinrich, San Antonio; Pitts Barnes, Hico; Tony Chisom, Amarillo; W. J. Fulweilder, Abilene; C. T. Osborne, Paris; Lee Hawley, Marshall; P. G. Stokes, Big Springs; Ad Buquor, El Paso; Percy Willis, Waco; W. H. Peck, Ft. Worth, and A. C. Bancroft, Corpus Christi.

The automobile and accessory agencies represented at the meeting were: Hubb Diggs, Ft. Worth; Austin Motor Sales Co., Austin; Ben M. Barker, Austin; Buick Automobile Co., Dallas; Texas Chalmers Co., Dallas; Woodward Carriage Co., San Antonio; Randal-Adams Co., Dallas; Guarantee Motor Co., San Antonio; W. T. Wroe & Co., Austin; Texas Oakland Co., Dallas; Thomson Motor Co., Austin; Anderson & Benson, Austin; Ray-Rose Co., Dallas; Robertson & Pearson, Houston; Universal Car Co., Houston; Dow Motor Co., Houston; Armor Auto Agency, Houston.

Engineers Decree Single Fuel Standard

DETROIT, Feb. 8—A gasoline ordinance calling for one grade of fuel was agreed on by automobile engineers and oil company representatives in conference here to-day. The ordinance calls for fuel which will show a total of 20 per cent boiling at 220 deg. Fahr. The fuel can be either distillate or cracked. The oil company experts wanted 16 per cent boiling at 212 deg., claiming it better for warmer weather. The engineers overruled this recommendation on the grounds that it was unsatisfactory for winter weather.

American Truck to Build New Plant

DETROIT, Feb. 8—The American Motor Truck Co. will start work on a plant in southwestern Detroit on the Michigan Central tracks within 30 days. The company is incorporated for $600,000.

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The RETAIL NEWS.

NORTHWEST

Minneapolis—Among the developments of show week ending last Saturday notwithstanding strenuous efforts of country dealers to have the time extended was the announcement of new automobile and tire distributers. Among them are the following:

Minnesota Motor Car Co., 111 Tenth Street S., Liberty.

McKinney, Fuller Curtis Motor Co., Smith Form-A-Truck, through agencies at Glasgow, Mont., and Williston, Minot, Grand Forks and Fargo, N. D.

Dahl Punctureless Filler & Tire Co., 1424 Hennepin Avenue, Dearborn truck.

Federal Truck Co., 24 Eighth Street S., formerly Stanton garage, Federal trucks.

Hess-Thompson Motor Co., 40 Tenth Street S., Doble.

C. H. Blakeman Auto Co., 1110 Harmon Place, Yale.

Nicollet Avenue Automobile Co., 1332 Nicollet Avenue, Madison.

Allen Motor Car Co., 113 Tenth Street S., Bour-Davis.

Enos Ashley, 101 Tenth Street S., Moon in Minnesota.

Harmon Tire & Repair Co., 1211 Harmon Place, Cleveland Standard.

McNaull Tire Co., 1514 Hennepin Avenue, Springfield tire.

Santwier-Finley Co., 1025 Hennepin Avenue, Seneca.

The Harper Motor Co., 213 Sixth Street S., has been formed to succeed the Satterlee Motor Co. and it will distribute Savage tires. The firm has 7,000 square feet of floor space. G. W. Harper is manager.

L. A. Stanton has arrived from Chicago to take charge of the business just opened by the Falls Tire Co., at 1123 Nicollet Avenue. A. L. Roble is salesmanager and J. H. Hunziker is in charge of local sales.

The New York Auto Radiator Repair Co. has opened a radiator shop at 722 Hennepin Avenue in charge of S. and M. Picow.

The Minneapolis Tire & Repair Co. has moved to 1521 Hennepin Avenue. P. E. Hawkinson is propprietor.

The Chalmers Motor Co. of Minnesota has opened at Hennepin Avenue and Harmon Place on Motor Row. Richard Bacon is Northwest branch manager.

G. M. Curran, district manager for Minnesota, the Dakotas, Wisconsin, Illinois and Iowa, has removed headquarters from Chicago to the company's International Motor headquarters at 1301 Hennepin Avenue. J. M. Slattery, manager of the branch since it was opened a year ago, is to have charge of sales.

Until its new plant is completed at Twenty-sixth and University Avenue SE., the Maxwell Motor Co. Inc. will assemble cars in the new plant of the Twin City Four Wheel Drive Co., University Avenue and Pelham Street, St. Paul. This will be June 1. Fifteen to twenty cars a day is the initial output.

B. F. Goodrich Co., whose branch just opened in a new building at 1221 Harmon Place, has taken four floors in the Security Warehouse Co. building as additional storage space. Manager E. W. McCreery reports sales double those of last year. Several new stores have been added to the chain in the Northwest, including St. Paul, Fargo, Duluth, Sioux Falls and Mason City.

The Potts Motor Co., new Ford dealer now at 407 Tenth Street S., will have a new building April 1 with 145 feet frontage on Fourth Avenue at Tenth Street.

The Weld Limousine Service, operating Chalmers cars, has opened with offices with the John P. Snyder garage, 407 Tenth Street S.

The W. H. Boone Co., 205 Plymouth building, has made an automobile directory of the Northwest, giving cars, makes, owners, license numbers and lists of dealers, truck owners and dealers and manufacturers, including Canada. The company lists garages and size and storage space, etc.

St. Paul—The Saxon agency is the American Auto Co., 353 Main Avenue, is now controlled by C. A. Hoskins and R. C. Steube. The new salesmanager is James V. Chewing.

The Ajax agency has been taken by the White Auto Supply Co., Sixth and St. Peter Streets. J. T. White is manager.

George Johnson, Edmore, N. D., will build a garage.

The La Porte Garage, La Porte, Minn., has been bought from M. Whiting by Charles Valentine of Benedict, Minn.

Ray C. Moore and **A. G. Peterson**, Harvey, N. D., garage and repairshop, have dissolved partnership.

William Arbee and **Robert Lail**, Deer Lodge, Mont., have sold the Deer Lodge garage to C. J. Kading and C. J. Pine.

A. Upton and **F. B. Martin**, Minot, N. D., have bought the F. J. Wells interest in the Minot Motor Sales Co.

The Yellowstone Trail Garage, Anaconda, Mont., has been incorporated by C. W. Pelton, John Barbour and E. M. Niles.

Aldrich Bros., Whitefish, Mont., have bought the Whitefish garage.

W. N. Maimberg and **J. E. Jacks**, Thompson Falls, Mont., will build a garage, 36x80.

H. Dehnel & Son, Bertha, Minn., will erect a brick garage, 50x80.

F. F. Jacobson, Ruthton, Minn., will erect a garage, 44x100.

George Ergen, St. Martin r. d. Pascal, Minn., will build a garage, 48x84.

Eby & Young, Minot, N. D., will erect a $40,000 garage, Fourth Avenue and First Street.

George Johnson, Erdmore, N. D., will build a garage.

G. D. Wells & Son, Franklin, Minn., will make an addition to their garage.

John Meland, Hawley, Minn., will enlarge his garage.

H. F. Loranger and **Tom Gray**, Chinook, Mont., will erect a garage, 60x140, in Havre, Mont.

R. W. Jamison, Mitchell, S. D., has opened a garage and repairshop at 413 Ninth Avenue E.

Roy Curley, Stillwater, Minn., has bought the interest of Alfred Olstad in a garage he owned with A. B. Jamieson.

Carlson & Douglas, Wells, Minn., has leased the Wells garage.

J. P. Rice, Caledonia, Minn., will open a tire repairshop.

John Busse and **Frank Pickett**, Preston, Minn., have bought the James Christenson automobile repair business.

Cayuga Auto & Machine Co., Cayuga, N. D., bought the E. J. Ross hardware business.

Leslie Robertson, Harlowton, Mont., has taken management of the Central garage.

F. E. McDougal, Almont, S. D., will open a garage in connection with his blacksmith shop.

G. A. Bailey, Mandan, N. D., sold his business to the Western Sales Co. of Bismarck, N. D.

F. R. Dunlop, Dickinson, N. D., bought the N. A. Blood garage on W. Willard Street.

W. L. Seeley, Wolsey, S. D., bought the J. P. Anderson garage.

Jaquith Motor Co., Sioux Falls, S. D., incorporated at $25,000 by Frank Jaquith, Mrs. Mary Jaquith and E. T. Doyle.

Barquist Bros., Moose Lake, Minn., bought the Lower garage.

G. A. Freeman, Upham, N. D., bought the B. Borden garage.

Springen Bros., Mayville, N. D., will take over the Mayville Motor Co.

George C. Call, Sioux City, Ia., is building a new garage at Pearl and Seventh streets.

N. P. Sorenson, Moorhead, Ia., has bought the Moorhead garage from W. A. Nicholson.

Brooks & Moneyhun, New Market, Ia., soon will move its Ford garage and service station into a new and fireproof building.

The Dake Motor Co., Royal, Ia., has been bought by Hjelm Brothers.

The Hinegardner Auto Co, Toledo, Ia., has been bought by Morgan & Company.

W. A. Loos, Dows, Ia., has sold his garage business to the Drury Auto Co.

J. P. Naffziger, Koekuk, Ia., has sold out his interest in the Tri-State Garage of that city.

Gus W. Strohmeier, Sac City, Ia., has bought the Pattee Auto Co., from George W. Pattee.

The Manson Auto Co, Manson, Ia., has bought ground for 50 x 100 addition to its present quarters.

The Markley Auto Co, Millerton, Ia., will build a new garage near the post office.

N. P. Bedard & Sons, La Porte City, Ia., has bought out the garage business of Good & Flynn.

Bernie Cludine, Mapleton, Ia., has bought the John Lietzen garage and will continue the business.

H. E. Snyder, Milton, Ia., has opened a new garage in the Toops Building.

The Walter Motor Car Co, Gladbrooke, Ia., has bought ground for a new building to provide display floors.

The Halling & King Motor Co, Muscatine, Ia., is successor to the auto and garage business of Smalley & Halling.

J. E. Alexander, Grinnell, Ia., will open a Glide service station ot Fourth Avenue and Spring street.

Elmer Wendell, Story City, Ia., has bought a half interest in the repair department of the Story City garage.

Marenus Bomgaars, Hull, Ia., is successor to the garage business formerly conducted by Kuyper & Bomgaars.

N. O. Younggren, Dayton, Ia., has bought out the interest of Joe Hall in their garage business.

The Webster City Overland Co, Webster City, Ia., plans to open for business in a new garage here this spring.

Bomberger & Kuhl, Templeton, Ia., will build a new fireproof garage, 50 x 100, on ground they have just bought.

A. E. Jones, Madrid, Ia., has bought out the interest of his partner, Frank Timanson, in the Jones Auto Co.

Earl Boyer and **Dick Stanaway**, Anamosa, Ia., have bought the Frank Hart garage.

L. A. Walsh, Elkader, Ia., will build an addition this spring to his Ford garage.

C. K. Ross, Tipton, Ia., has let the contract for a new garage which he will build at Fourth and Cedar streets.

George Staab, Lisbon, Ia., has sold his garage to Carbee Bros.

F. Furst, Adair, Ia., is building a new garage which will house a business to be conducted by James S. Saum and H. N. Geist.

The Rude Auto Co, Perry, Ia., will start a branch garage in Nevada.

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J. L. Mills, Charles City, Ia., now is sole owner of the Riverside garage, having bought out his partner, Sylvester.

Boock & Jurgenson, Schleswig, Ia., are building a brick block in which they will open a new garage.

SOUTHWEST.

H. E. Hunt, Richmond, Kan., is moving back to Kansas City, where he will engage in the automobile business.

Geo. H. Rogers, Smith Center, Kan., has opened a new garage and auto repairshop.

Woodbury Howe, Wichita, Kan., will spend about $10,000 during the next few weeks in remodeling a building the ground floor of which will contain a model garage.

Williams & Hughes, Aurora, Mo., have bought property and will erect a garage.

Ratcliff & Hunter, Barnett, Kan., recently sold their garage to Kelly Bros. of High Point.

Harry Hendrickson, a Branson, Mo., garage owner, reported January 19th, a loss by fire.

The Stevenson Motor Car Co. has purchased the two-story brick building at 1525 McGee Street and will make extensive improvements before moving in.

Barton Blakeslee and **Guy I. Watt,** Independence, Kan., have purchased the Independence Motor Co.

Ray H. Crimmel, Independence, Kan., will open the Kansas Motor Co.

Lloyd Jones, Kiowa, Kan., has moved his garage from North Sixth street to Seventh and Main.

Charley Coffey, Leonora, Kan., has purchased the garage stock of Eagleburger & Hendricks and will continue the business.

H. E. Ewart and **E. D. Tarvin,** Marysville, Kan., have opened the Marysville Battery Service Co.

Paul and **Chas. Hunter,** Perry Kan., have purchased the Golden Belt garage from Jeffries & Cavanaugh.

Russell Albaugh and **Mark Hart,** Glade, Kan., have purchased the Sparks & Jaenecke garage.

The Tire Service Co., Pittsburg, Kan., have had to triple their capacity.

The Santa Fe Trail garage, Burlingame, Kan., is building a brick addition on the lot to the west, an extension on the east, a furnace for steam heat and adding a battery plant.

Ted Brown, Burlingame, Kan., is building a new garage.

Root & Hamilton, Coffeyville, Kan., are opening a tire and accessory business.

O. O. Crane, Coffeyville, Kan., is building a new garage.

Ed Lambert, Concordia, Kan., has purchased a garage.

G. W. Bandt, Goodland, Kan., is building a garage.

The McCoy Motor Co., Garden City, Kan., will build a garage and machine shop.

Claude Coggins, Holton, Kan., is erecting a building to be used as a salesroom and storeroom for Overland cars.

The Reichel Motor Co., Macon, Mo., has been chartered, capital stock, $40,000, by Theodore Reichel, John W. Hatton and D. W. Acuff, to manufacture and deal in automobiles.

The Al-Bach Automobile Accessories Co., St. Louis, has been chartered, capital stock, $2,000, by Frank V. Alden, P. L. and Drucilla Humbach, to deal in and repair motor vehicles.

The Metropolitan Auto Service Co., St. Louis, has been incorporated, capital stock, $2,000 paid, to do a garage business. Incorporators are Patrick P. O'Neill, Emily H. Stephens and Geo. D. Duntze.

The Auto Supply Co., Dodge City, Kan., incorporated recently with $20,000 capital by T. H. Spaulding, A. J. Jackson and I. B. Jackson, a branch of the Auto Supply Co. of Hutchinson, Kan., will open in March.

Dean & Whightsil, Altoona, Kan., are building an addition to their garage.

J. W. Blakenship, Downs, Kan., Maxwell dealer, is moving into the remodeled Kindley building.

The Curtis Motor Co. Canton, Kan., has been organized by Rex Curtis and Harry Webster, and will occupy a building being converted into a garage.

J. E. Webber, Hogoton, Kan., will occupy with Overland salesroom and supply department, part of a brick building now being erected.

Witt & French, Gorham, Kan., are building an addition to their garage.

The Auto Sales and Service Co., Kiowa, Kan., has succeeded the firm of Ingham & Brown, Jas. K. Ingham retiring, and E. G. Thompson becoming associated with W. J. Brown.

The Crider Bros. Garage & Auto Repairshop, Topeka, Kan., will move shortly to 413-415 East Fourth street.

E. A. Baldwin, Kennett, Mo., has opened a garage and repairshop.

J. C. Rudert & Sons, Cape Girardeau, Mo., have opened the Overland "Safety First" garage.

W. L. Hannaca and **R. L. Blacet,** Glascow, Mo., are erecting a building for the Blacet Garage & Machine Works, the title of the firm they have recently organized.

Johnson & Corgan, Fredericktown, Mo., garage and supplies, will move to the first floor of the Masonic building.

Hansel Compton, Independence, Mo., will open soon a garage with accessory department.

Hatfield & Gentry, Ava, Mo., will soon open a garage to be known as the Ozark Garage.

Poland & Hawkins, Nevada, Mo., have rented quarters where they will open a garage.

Glen Townsend and **Guy Millsap,** Rockport, Mo., have rented the garage of George Potschke, who will reopen his blacksmith shop.

Radke Bros., Russell, Kan., will open a garage in May, in a building now being erected by J. G. Radke, of this firm.

W. J. Scholl, Sterling, Kan., has bought the interest of his brother, F. G. Scholl, in the M. & L. Garage.

M. V. Heffner, Sterling, Kan., succeeds D. J. Fair in the accessory business, Ford dealer.

Roy Goodwin, Toronto, Kan., is installing equipment for his garage, to be opened soon in the Mills building.

Felix Dowling, Walnut, Kan., has bought the Frank Westhoff garage and blacksmith shop.

A. L. Dillon, formerly of Wellington, Kan., is now operating a garage at South Haven, Kan.

O. J. Watson, of the Watson Automobile Co., Wichita, Kan., Overland dealer, is planning a six-story building for his business.

The Detroit Electric Automobile Co., Wichita, Kan., will get into its new building by March 1; the Randall Motor Co. will occupy a showroom in the building.

R. L. Johnson, Belleville, Kan., has bought the Meridian garage of Mosher & Berry and will move his own garage to their location.

J. Eisen, Clay Center, Kan., has bought property to which he will move his Western Auto Wrecking and Supply Co., at Fifth and Grant avenues.

EAST.

H. W. Hayden, former vice-president and general manager of the Pullman Motor Car Co., has opened an office in the Rupp building in this city and will embark in another manufacturing enterprise.

L. A. Wallace, 60 Cameron street, Harrisburg, has been made the distributor for the Pullman car for Dauphin and Perry counties. He will conduct the business under the name of the Pullman Sales Company.

The Hopkins Manufacturing Co., of Hanover, engaged in the manufacture of commercial automobile bodies, is erecting a large addition to its plant to accommodate its rapidly growing business. The new building will give more than 15,000 square feet of additional floor space.

Albert H. Hayward and **John C. Garman** have erected a $6,000 garage building at 98 South Cameron street, Harrisburg.

The Sterling Auto Tire Co., Harrisburg, distributers for Miller tires, have moved from its old location in the building at 109 South Second street. Here the company will conduct a salesroom, repairshop and vulcanizing business.

The C. A. Fair Carriage & Auto Works, Harrisburg, has taken possession of the entire building formerly occupied by the I. W. Dill Carriage & Auto Works, located at the east end of the Mulberry street bridge. The Fair shop is devoted to the making of tops, curtains, cushions, backs, and repair work.

W. Clark Grieb, Briscoe dealer at 851 North Broad street, Philadelphia, has been changed to Grieg & Thomas, with the entrance into the firm of John R. Thomas, lately of the Washington branch of the U. S. Motor Co. The new firm has secured the agency of the Redden truck and has taken over the Wilmington, Del., agency of the Briscoe.

The Garage Service Co., Philadelphia, was incorporated for the purpose of operating a chain of garages and the sale of accessories in this city. Charles S. Wagoner and J. W. McWilliams, Crozer building, are the incorporators.

G. Y. Lansing and **C. D. Hakes,** having resigned as directors of the E. V. Stratton Motors Co., Albany, N. Y., and Guy D. Hills having resigned as a director, secretary and treasurer, the following officers and directors were elected at a meeting held at the Stratton Company's headquarters, 91 Chapel street: Charles Gibson, director to succeed Lansing; George B. Evans, director, to succeed Hakes; J. W. Gardner, director, to succeed Hills. Gardner has been acting as assistant treasurer in charge of accounts for the past year. Ezra Mickel was elected treasurer, and has been connected with the company since it started. Stratton was elected secretary, in addition to being president.

MIDDLE WEST.

R. A. Walker & Co., Marshall, Mich., new Dodge dealer, has opened a salesroom and service station in the Murphy Block.

The Burtless Motor Sales Co., Grand Rapids, Mich., has taken over the Republic truck agency for five counties in Western Michigan. The present quarters at 44 Island street, S. W., will be maintained as a service station, and the new salesroom, which is 134x51, and located at 16-18 Commerce avenue S. W., is nearing completion.

George R. Baltzer, Ludington, Mich., newly appointed Ford dealer for this city and vicinity, has taken possession of the garage on south James street, adjoining the Lyric theatre.

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C. L. Barton, Durand, Mich., will build a one-story garage on Saginaw street. Vulcanizing and tire repairing will be a feature.

Henry Stoddard, Litchfield, Mich., has become a Dodge dealer for the township of Litchfield.

J. J. Thomson of Grand Rapids and M. Guiffre of Traverse City, have formed a partnership and purchased the local branch of the Sales Storage Battery Co. Thomson will manage the business.

J. J. Aldrich, used car dealer of Columbus, Ohio, has removed from 1082 North High street to 10 North Fourth street.

H. L. Gilber, Columbus, Ohio, formerly a director in the Ohio Buick Co., has been elected a director of the Monitor Motor Car Co.

W. G. Short & Sons, Dwight, Ill., have purchased the stock of automobile supplies owned by John B. Hayes at the Chippewa street site and will hereafter conduct the business at that place.

Dood & Wecker, Danville, Ill., have opened a garage at 32 Hazel street, and will be distributers for the Pullman and do a general repair business. The firm will also handle a line of supplies.

The Williamson Motor Car Co., Rockford, Ill., has opened a branch salesroom and service station at 612 Seventh street, that city. A line of supplies and accessories will be carried.

The National Motor Supply Co., formerly located in Cleveland, has moved into its new factory at Painesville, Ohio.

A. E. Schultz, Wautoma, Wis., has disposed of his garage and business to H. M. Younglove, who will install additional equipment. Younglove becomes Ford dealer by the sale.

The Kinney Motor Car Co., Eau Claire, Wis., which has been incorporated with a capital stock of $50,000, has been appointed distributer of the Oakland, Maxwell and Mitchell for northwestern Wisconsin and will establish thirty subagencies.

Frank Washatko, Almond, Wis., has leased the National Garage in that city and will take possession March 15.

L. W. DeGroff, Delavan, Wis., has formed a partnership with A. S. Hatch to become Mitchell dealers in Walworth county and adjacent territory.

The Marshfield (Wis.) Hardware & Auto Co. is enlarging its place of business to provide more room for the repairshop and also to enlarge its accessory and supplies stock.

Wm. C. Raue & Co., Watertown, Wis., is building a large addition to its painting and repairshop for the purposes of its motor car service department.

The Langstadt-Meyer Co., Appleton, Wis., with branches at Green Bay and Oshkosh, Wis., official service stations for the Willard Storage Battery Co., has been granted considerable additional territory, making it the largest Willard station system in Wisconsin.

J. J. Streiff, New Glarus, Wis., has purchased an interest in the W. S. Hoesly Garage, Monticello, Wis., which has leased larger quarters and will move the garage and service department on March 1. The present building will be used as show and salesrooms.

W. W. Delong, architects, Appleton, Wis., are in charge of plans and construction of a new public garage, costing $8,000. The owner's name is withheld.

The L. J. Anderson Co., Manitowoc, Wis., operating a garage, repairshop and farm implement business at 722 Commercial street for many years, has been dissolved as a corporation. L. J. Anderson will continue the garage and repair business. Theodore O. Anderson and Henry Zinkel take over the farm machinery department.

The A. Kittelman Motor Car Co., Milwaukee, Jackson, Hollier, Chevriolet, Acme and Kelly truck dealer, has taken possession of its new garage and service station at 1819-1821 Center street. From February 8 to 17, the company conducted a "community motor show," displaying twelve models of its various lines.

W. H. Stewart & Son, Delavan, Wis., are preparing to build a modern fireproof garage and repair shop to replace the structure destroyed by fire several weeks ago with a loss of $17,000.

Ignatz Czeerwinki, Milwaukee, is planning to build a garage and repair shop at Mitchell Street and Second Avenue, to be of reinforced concrete and brick, 44 x 100, one story and basement, and cost $10,000.

PACIFIC COAST

Rose Brothers, operating Rose's Garage at Niles, Cal., have closed their branch in Milpitas and are now handling the Ford in connection with F. J. Krusich.

C. C. Skinner, operating the Junction Garage at Mountain View, Cal., has opened an Overland service station.

W. J. Murray has assumed personal management of the Menlo Garage at Menlo Park, Cal.

E. and C. Peters, operating under the name of Peters & Co., have opened a factory and office at 1545 Pine Street, San Francisco, and will specialize on building bodies for pleasure cars.

George M. Whitmore, one of Detroit's pioneer automobile men, has purchased the Beresford Garage in San Mateo, Cal., and will handle the Haynes.

The State Highway Garage, at Mountain View, Cal., has been purchased by George W. Sohler and entirely renovated and enlarged.

George A. Sabourin, Tacoma, has opened exclusive truck headquarters at 114-116 Ninth Street, having the agency for Mack, Sauer and Vim trucks.

S. Caruso & Bro., Pittsburg, Cal., have erected a garage building at the corner of Fourth Street and Railroad Avenue. The building is brick and concrete, occupies 3600 sq. ft. of floor space and has Reo salesrooms and service station.

Bruns Brothers, operating the Brentwood garage in Brentwood, are erecting a garage in Antioch, Cal., which will be a Ford and Buick service station.

The Saxon Motor Sales Co., Los Angeles, has been succeeded by the J. V. Baldwin Motor Co. The Mitchell line has been added to the Saxon, which accounts for the change in name. Southern California distribution is controlled by the Baldwin company, which has the same personnel as the old Saxon Motor Sales Co.

St. Helens Auto Sales Co., Tacoma, is now under new management, William P. Sheehan and J. W. Linck, Jr., formerly in railway circles, now distributers of Cadillac, Moon and Scripps-Booth cars.

Case & Carleton, Inc., Seattle, have opened a fully equipped service station and vulcanizing plant at 500-502 Stewart Street.

Pacific Highway Garage, Seattle, has been opened at 106 Stewart Street by **Frank L. Merrick.**

Metropolitan Garage, Seattle, have opened at Union and University Streets with a line of Goodyear tires.

E. W. Niehoff, Seattle, until recently with the Waterhouse-Sands Co., will hereafter be associated with the Eaton & Campbell Co., Dodge distributer, in charge of commercial sales department.

Miller & Olson, Seattle, have opened at 1818 Broadway and have secured the state agency for the Miller brake for Ford cars.

Arensberg Auto Supply Co., Seattle, has opened spacious quarters at 906 East Pike Street with a full line of tires and accessories.

Hainsworth Motor Car Co., Tacoma, will move into permanent headquarters at 38-40 Broadway. The Tacoma branch is under the management of "Count" A. B. de Castellane, who will distribute Oldsmobile cars throughout Pierce County.

St. John & Titus, popular southwest Washington dealers, and who maintain branches at Olympia, Chehalis, Centralia and Tenino, have taken the agency for the Oldsmobile line.

Floyd J. Logan, Tacoma, distributer in the major portion of Washington, part of Montana and a number of counties in Idaho has established permanent headquarters in Tacoma at 717-19 Broadway, for the Maxwell line.



Over the Dixie Highway from Chicago to Tampa, Fla., the Diamond-T 2-ton truck shown above is forging ahead at the rate of 70 miles a day in the charge of two Wisconsin woodsmen and hunters. The trip is being made as a demonstration of the stamina of the Chicago-made vehicle and to deliver a cargo of spare parts to Hixon & Warder, south Florida distributors of Diamond-T trucks

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Joseph A. Schlecht

St. Louis

The twenty-fifth in a series showing

Dealers Who Have Made Good

JOSEPH A. SCHLECHT came into the automobile business with a sound understanding of his task, for his entire business career had been concerned with business vehicles.

He first made, then sold buggies as a jobber. He was one of the men who was farsighted enough to know when to let go. He began in St. Louis—where he was born March 28, 1887—and he helped to make the name of the Mound City Buggy Co. well known to the vehicle trade.

When he saw the automobile in the distance, he let go the manufacturing end. Then he became a jobber of buggies and also of the Jackson line of automobiles.

His line of buggies was that made by the Allen Co. of Fostoria. When they began making automobiles he went with them to that line and is an important distributer in that organization. Also he has been an advisor and he has advised with the knowledge gained in the pleasure vehicle business.

The Allen Classic, a model that jumped into popularity during the fag end of the last summer, had its beginning in a bridal car painted at Schlecht's order for a St. Louis automobile show. The first bridal car was an extreme in the fancy car line, a cream colored large machine. Gradually it was toned down for better wearing qualities until it became the Classic.

Also Schlecht knew the banks and they knew him, also his conduct of the buggy business. He was one of the first St. Louis dealers to get the banks to help carry the winter load.

The Why:

Schlecht is an organizer. "We know our dealers' weak points," he says, "and when an occasion comes for them to make an exhibit we send to aid them men who are strong where the dealer is weak." That is the Schlecht idea of teamwork. He has spread it over Missouri, Illinois and Arkansas, where Jackson and Allen cars are sold.

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SCIENTIFIC
CONSTRUCTION
GARAGES
SHOWROOMS
REPAIRSHOPS

By Harold F. Blanchard

Why the Accessory Store Should Front on Main Street

Full Reasons for Selecting Certain Layout for Showroom, Accessory Store, Garage and Shop

EDITOR Motor World: We will give you a rough diagram showing the size of the lot on which we desire to erect said building—the position as to streets, other buildings, etc. We have a corner lot, 50 ft. wide running back 140 ft. to an alley in the rear.

We had thought of putting up a two-story building, and using the front downstairs, back for 50 ft. or more, as a display room for new cars. We handle five lines of cars, Hudson, Hupmobile, Dodge, Oakland and Buick, and of course, would want display room for say six or eight cars, at least one of each make we represent.

Back of that we thought best to put in an accessory and parts department, possibly divided off from the display room in some manner.

Back of that or on the second floor a service station and wash room.

We thought that we could use the second floor in front directly above our showroom as a display room for our used cars and if possible arrange the front of the building upstairs in such a manner as to attract possible buyers of used cars to this second floor and have plate glass windows so that the cars could be seen from the street.

We thought that we could use the space back of our second floor display for a storage space for our surplus of new cars, etc.

From our experience we thought it best to cut out open storage altogether and have the building built just as we have outlined above. The storage rate is very low and in order to accommodate the cars we are compelled to keep open at night and also on Sunday. With our other arrangements we could close up if we so desired.

We, however, would like to have some suggestion from you as to whether or not we should have open storage space—or in other words, which do you think would be the more profitable?

How many cars we wish to have in the shop is a question. We thought that we would confine our service work mostly to the cars that we represent and only have a small repair force, say two or three good men, and not cater to outside work on other makes of cars.

If you think it more practical you could put the shop in the rear of the building on the second floor and the wash rack downstairs.

With reference to desks—we would want room say for one roll top desk, one large flat top desk, filing cabinet, typewriter desk, etc., either in some part of our display room or in the accessory room. We could possibly put the roll top desk in the display room and the other desks in the rear in a small office railed off.

We trust that our explanation to you is complete, but if you desire further details kindly call on us for same.

In reply please be sure to state your experience or knowledge as to whether or not we should conduct an open garage, or would it not be more practical to eliminate storage altogether and construct the building as we have outlined to you.—Kite-Barker Motor Co., Bristol, Va.

Accessory Store Up Front

The plans, Fig. 1, have been changed somewhat from what you desired, but we believe that you will sanction the changes.

The accessory store has been placed at the side, instead of at the rear of the showroom because this is a better place for it. Also, you should have an accessory window and this would not be convenient if you had the store at the back of the building. The accessory and parts stockroom is directly back of the accessory store. The store is separated from the showroom by two showcases and an arch might be used to still further give the effect of an alcove.

The used car department has been placed back of the showroom because it is easier to get your prospects to look at cars with the showroom in this position. Often a sale will hinge on whether you can get your man to look at the car you are talking about or not, and it is much easier to ask him to step back to your used car department than ask him to climb stairs. Furthermore, you take advantage of display space at the side of your building. You should have a sign at the side or corner of your building calling attention to the fact that your used car showroom is on the side street. You should also take advantage of the display space at the front on the second floor by placing two used cars in the windows the same as you planned.

The shop is placed on the second floor at the rear and the rest of the space is given to storage of new cars and general garage business.

HIGHER AVERAGE RATES

If in doing a garage business it seems that you and your partner will have to work nights and Sundays, by all means forget this part of the business. You will find that in the end you will make much more by concentrating on sales. On the other hand, if it is not necessary for you to work nights and Sundays, if you can delegate the management of the garage to some trustworthy assistant, we think that you will find it advisable to operate a garage department.

If, in order to make money, you are

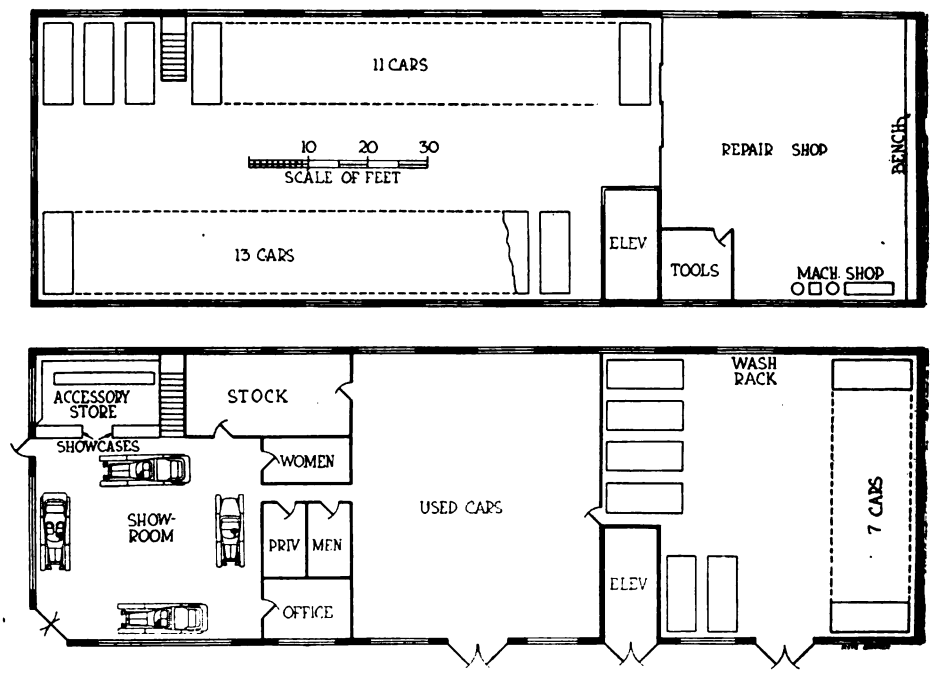


Fig. 1—After allowing ample frontage for the showroom there is still plenty of room for the accessory store

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Fig. 2—An attractive looking building which would look well whether it was built of plain brick or trimmed with terra cotta

obliged to charge higher rates, do not hesitate to do so. You will have a modern building which will offer many advantages over other garages in town. Probably it will be more fireproof, it will be cleaner, possibly, it is better located and you should have no difficulty in obtaining more money for your spaces if you simply SELL your space, the same as you would sell a car. Think out what the talking points of your garage are going to be and proceed accordingly.

Lock the store at night but have a cabinet full of essential accessories in the garage and make the night man responsible. Thus, he is able to supply the urgent needs of motorists and at the same time you are not risking your whole stock of accessories. He can be held accountable for every article in this cabinet. The same applies to the man who has charge Sundays.

If you decide not to have the garage, we do not believe that you will require more than one floor.

The Repairshop Should Excel

You occupy a leading position in your town and it seems natural that owners of all cars should look to you for most expert repair work. You should make this a feature of your business. Your repairshop should be as complete as possible and your mechanics the most skilled. You should be ready to tackle any sort of a job and carry it through to a successful completion. Bearing this in mind, we are not so sure that two or three men will be sufficient. By specializing on repair work you will help the sale of your own cars because with a large business in your shop, you will have better equipment and more expert men, with the result that you can turn out better work. In other words, if you have only two or three men they must be jacks of all trades, but if you have a dozen, for example, one might be an electrical expert; another a first class welding man; another an expert motor man, and so forth. We believe you are missing a great opportunity if you do not specialize in repair work.

We shall be glad to draw you another plan if this does not suit you or give you any further information.

Objections to Plan

Editor Motor World: We thank you for your very kind suggestions as to arrangements for a building.

While Cumberland St. is the main street, yet the Lee St. side is very prominent also and we should think accessories could be displayed to good advantage on the Lee St. side, rather than use up the Cumberland St. side for that, as we do not believe you would have room for accessory display as well as display for new cars.

How would you think it would do to make it this way? A display room in front for new cars; right back of that and cut off by an arch or showcases, have your accessories and parts; back of that your second hand display room; back of that a washroom and shop.

It is a question with us as to whether we would have room enough for say five or six cars in our display room without crowding; fairly good sized accessory room; room for five or six second-hand cars, also room for a few new ones, and plenty of room back of that for shop and wash rack.

If we could get it all on one floor for the present we would prefer to do that and then later add on the second floor if we found that we required it.

If you can figure out room enough for the above on a space 50 x 140 ft. kindly let us have another sketch, or if you still think your original plan is better just say so.—Kite-Barker Motor Co., Bristol, Va.

We do not believe that you will find it advisable to change our plan.

Showroom Is Ample

You state that you think accessories could be displayed to greater advantage on the Lee Street side rather than use up Cumberland Street, as you do not believe there is room for accessory display as well as for cars. The showroom we have provided is 35 x 40 ft. and this is ample, as you will realize if you will lay this space out some place, say on a vacant lot, and place six cars in it; 35 x 40 ft. is 1400 sq. ft., or about 230 sq. ft. per car if six cars are displayed. That means that each car has a space of 23 x 10 or 12 x 20 ft. and this is more than ample. Inasmuch as your showroom has 35 ft. frontage on the main street, we can see no advantage in placing the accessory store on the side street. If it had been necessary to seriously reduce the showroom frontage in order to place the accessory store on the main street we would say that it would be more advisable to place the accessory store on the side street, but inasmuch as the showroom has all the frontage necessary to give an adequate display of your cars why crowd the accessory store off onto the side street? In other words we do not believe you should sacrifice your accessory business to your car business. There is a tendency among dealers to do this very thing and it is a mistake. The fact that you make a gross profit of say $200 when you sell a car blinds you to the fact that there is a lot of money to be made out of accessories, although the individual profits are smaller.

To sum up, we have placed the accessory store on the main street for the same reason we believe the showroom should be on the main street, namely, so that as many people as possible will pass it and will see the display in the window. If you apply the same methods in selling accessories as you do in selling cars you will be surprised at the result. You go to extreme ends to get prospects for your cars. When you see a car that is becoming old or in need of an overhauling you immediately get in touch with the owner, or if some man expresses the slightest dissatisfaction with his machine and you hear about it you are right on the job to see if you can't sign him up for one of your cars. Why not be just as energetic in selling your accessories? Keep your eyes open for tires that are about ready to blow out and get in touch with the owners, suggesting that they buy new ones. There are certain cars in your town that are notoriously hard riding, in fact one of the cars you handle, comes within this class. Here is a splendid opportunity for selling shock absorbers. There are other cars in your town which are having oiling trouble. There is one make of spark plug that is better than all others for these particular

(*Continued on page 47.*)

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A Department of

Better Mechanics

No. 11

Repairs and Adjustments of the Studebaker Series 16 and 17

(1) Torque Arm Repair

A DULL pound or knock occurring in the rear end of the car that cannot be definitely located by the sound alone. This is often caused by looseness at the point of attachment of the torque arm to the gearbox side, the bolts first becoming loose, and the wear multiplying.

To Determine Looseness

1. Excessive looseness may be indicated by absence of the retaining bolts holding the torque arm to the gear-box, or by the working of grease out around the bolt holes.

2. Place a jack beneath the torque arm, and work the arm up and down. Any small amount of looseness may be noted, Fig. 3.

The Disassembly

The fact that there is looseness indicates that there is wear, *and this cannot be removed by simply tightening the nuts in place.* The nuts and bolts must be removed, and the holes drilled out, permitting the replacement of oversize bolts.

Repeated trials have shown that this can best be done by removing the entire rear axle and torque arm from the car and getting them out where they can be worked on and the job properly done.

To Remove the Axle

1. Catch a hoist beneath the rear springs and raise the weight of the car from the axle.

2. Disconnect rear universal.

3. Disconnect rear end of the gear-shift rods.

4. Disconnect the foot brake rods at the center of the car.

5. Disconnect the hand brake rods at the lower end of the hand lever.

6. Disconnect the [illegible] end of the radius rods.

Previous Articles

Subject	No.	Date of Issue
Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains	2	Dec. 20
Maxwell—Rear axle repairs	3	Dec. 27
Chevrolet—Clutch repairs	4	Jan. 3
Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Buick—Rear axle adjustment	8	Jan. 31
Chalmers—Valve and ignition timing	9	Feb. 7
Dodge—Brake adjustment	10	Feb. 14

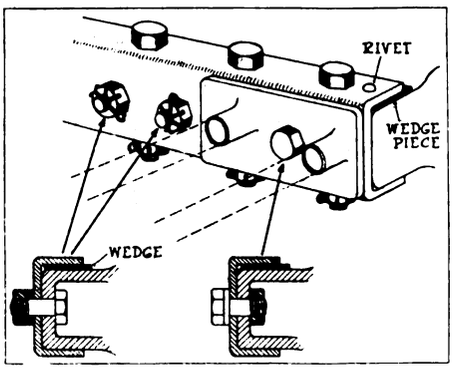


Fig. 1—Upper—How wedge is inserted inside of torque arm and held by rivet
Fig. 2—Lower—Section through torque arm showing wedge in place

7. Disconnect the front and rear end of the springs.

8. Set jack beneath front end of torque arm and relieve the tension on the torque arm spring. Remove torque arm nut.

9. Drop torque arm.

10. Raise car higher, so that the wheels will clear the fenders, and roll the axle out.

11. Set axle up on horses.

12. Remove left wheel flange and draw shaft out.

13. Remove wheel lock nut, washer and adjusting nut.

14. Pull wheel off.

15. Disconnect service brake top links and adjusting nut.

16. Remove the cotter pin from the emergency brake cross rod at its point of attachment to the left wheel brake flange.

17. Slip the spring from the emergency brake cam, *to prevent breakage.*

18. Pull the emergency brake cross rod out.

19. Loosen cross clamp bolt on the service brake arm, permitting the service brake rod to be pulled out.

20. Remove the six bolts holding the torque arm to the gear box, and remove the torque arm.

21. Remove the front end of the gear-box, after draining the oil out.

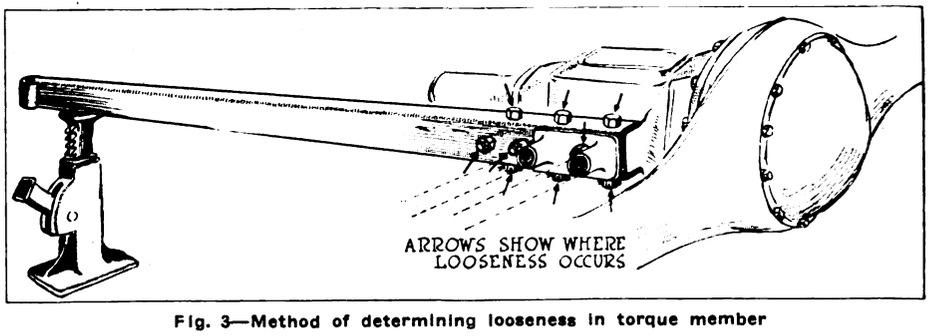


Fig. 3—Method of determining looseness in torque member

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22. Slide gears and gearshift forks from the housing.

The Repair

1. Drill all bolt holes carrying the bolts that hold the torque arm to the gearbox to 7/16 in.

2. Procure three 7/16-in. bolts and dress the heads of two of them down, as shown in Fig. 2. These bolts are to be used to hold the torque arm to the gear-box, *and will be placed with the heads on the inside* and in the two forward side holes only. *The threads should be cut down only far enough to permit the nut to pinch the torque arm side, causing the strain to be carried on the solid stock, as shown in Fig.* 2. The rear bolt through the side *must be placed with the nut on the inside,* as it cannot be inserted from the gearbox.

(*Note—A much better job will result if the bolt holes are first drilled slightly smaller than* 7/16 *in., and then reamed out to the exact size.*)

3. Procure a steel wedge piece, the thickness of which is slightly greater than the space between the gearbox and the torque arm, and catch it to the torque arm by a single small rivet, as shown in Figs. 1 and 2.

The purpose of this wedge is to take up any wear that may exist between the torque arm and the gearbox.

Never try to take up this wear by heating the end of the torque arm and forging the torque arm down to fit the gearbox. The wear would be taken up, but the heat treatment of the steel would be destroyed, and the arm would break after a little use.

4. Drive the torque arm onto the gearbox and bolt it in place, as shown in Fig. 1. Draw the nuts tight and lock with cotter pins.

Tne Assembly

1. Replace gears and gearshift forks.

2. Replace front end of gearbox, *using a paper gasket, and setting it in shellac on one side only.*

3. Replace brake rods and re-assemble braking mechanism.

4. Replace the wheel and tighten the adjusting nut until the wheel turns with difficulty after packing the bearing in cup grease.

5. Back adjusting nut off one-half turn, replace lock washer and lock nut.

6. Tighten lock washer. *See that wheel turns free,* and bend lock ring lug down over lock nut. *Never use the same lug twice, as a single use destroys the strength of the lug.*

7. Replace axle drive shaft, and rebolt flange to driving stud nuts.

8. Roll axle beneath the car.

9. Lower car until it hangs almost in its normal position above the axle.

10. Jack up front of torque arm and replace spring and nut. *Do not forget to put the cotter in place.*

11. Connect front end of radius rods.

12. Replace spring bolts.

13. Bolt universal together.

14. Connect service brake rods, emergency brake rods and gearshift rods.

15. Drop car onto axle and remove hoist.

Lubrication Notes

Fill gearbox two-thirds full of steam engine oil. Pack universal with cup grease. Oil all brake rod and gearshift rods with cylinder oil and pack wheel hubs with cup grease.

Maintenance

Tighten the nuts on the torque arm after the first 500 miles. Keep the gearbox two-thirds full of steam engine oil, and all other parts lubricated as noted.

(2) Valve Tappet Repair

Evidence of Trouble

1. Noisy tappets that cannot be quieted by careful adjustment without loss of power.

2. Loss of power.

The Disassembly

1. Remove hood.

2. Remove plugs, priming cups and valve caps.

3. Remove valve cover plate.

4. Remove valve spring lock pins and draw valves out. *The valves on the later models are numbered. Watch for the numbers and keep the valves in order.* If not numbered, mark with a prick punch before removing. Keep the springs with the valves.

5. Remove the tappets, marking them also.

The Repair

1. Scrape or burn the carbon from the cylinders.

2. Grind the valves. Before doing this, however, *note whether the valves have been seating evenly.* Uneven seating is caused by warped valves or warped valve guides. The seat should be refaced with a reamer; the valve with a special refacing device, a grinder or in a lathe.

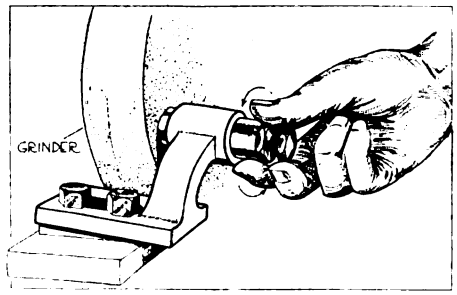


Fig. 1—Fixture for grinding valve tappet

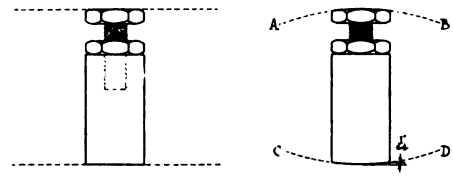


Fig. 2—Left—Valve tappet before grinding. Right—Valve tappet after grinding

3. Using the fixture shown in Fig. 1, grind a crown on the bottom and top of each tappet, as shown in Fig. 2.

The fixture illustrated is cast brass, and is clamped to the rest of a common tool grinder. A similar one should be made if the volume of work warrants it, though a simple one for occasional jobs may be forged from steel.

The crown ground on the tappets is slight—only about 1/64 in. of stock being removed from the edge, as shown in Fig. 2.

The Assembly

1. Clean all parts with gasoline or kerosene.

2. Dry all parts thoroughly. Lubricate the valve tappets and guides with oil.

(*Note—If any gasoline remains on the tappets or guides, it tends to form a rust that causes the valves to stick. Kerosene, likewise, cuts the oil and leaves a brown deposit that stops the action of the valves.*)

3. Replace the pushrods in the order removed.

4. Replace the valve springs in their proper place, together with the locking cups.

5. Drop the valves into place.

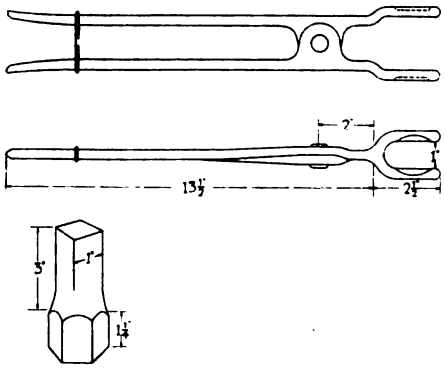
6. Raise the valve springs and lock them in place.

7. Replace valve caps, setting the threads in graphite and oil paste.

8. Replace plugs, wires and priming cups.

9. Run the engine until it is hot.

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Upper—Valve remover. Lower—Plug for fitting valve caps

10. Adjust the intake valves to .002 in. clearance between the valve stem and the tappet, using a feeler gage, and having the tappet in the lowest position.

11. Adjust the exhaust valves to .003 in. clearance.

12. Run engine to see that everything is all right.

13. Replace valve copper plate.

Maintenance

Adjust the valves the minute they become noisy. Sticking valves or carbon beneath the valves may be temporarily stopped or removed by greatly increasing the valve clearance and allowing the valves to hammer for a short time. Prying the valve up with a pinch-bar and letting it snap back in place will often help. But these are temporary repairs only, and a good job requires tearing down and removing the cause.

Inspection and Lubrication

Detailed Directions Applicable to the Average Car

PERIODIC inspection and lubrication of every motor car is absolutely necessary to satisfactory service. The inspection usually received is not systematic or thorough. This is the way it should be done

Road Tests

A road test should always be made if practical, as it will bring to light troubles that could not be readily found in the repairshop.

1—The gears should shift easily and quietly.

2—The clutch should neither slip nor drag.

3—The engine should pull evenly, accelerate quickly and not skip.

4—The car should steer easily.

5—Locate squeaks, rattles, knocks or pounds.

All needed adjustments should be noted, but not made until after all parts have been lubricated and tightened. Adjustments may then be found unnecessary.

Engine Inspection

1—With engine running, look for oil and water leaks.

2—Open radiator drain cock and flush radiator with clean water.

3—Listen closely for minor engine noises, such as noisy tappets, loose driving chains or fan. Make necessary adjustments. Test compression and see if valves are O. K.

4—Fill all oil and grease cups on the engine, with the engine running, if possible.

5—Remove and clean spark plugs.

6—Drain oiling system and fill with new oil.

7—Grease steering gear and remove back lash in wheel.

8—Tighten engine bolts.

9—Wipe the engine clean.

Clutch Inspection

1—Note whether clutch operation is free and quiet. Particular attention should be given to the thrust bearing and to the throw-out yoke. Both sides of the yoke should hit the throw-out collar at once.

2—Wash, clean and lubricate the clutch as directed by the makers.

3—Make necessary clutch adjustments.

4—Fill all grease cups and screw them down at least once. Refill.

5—Oil clutch and brake pedal mechanism.

6—Clean clutch assembly.

Universal Joint Inspection

1—See that the universals have no back lash. Tighten if possible.

2—Oil or grease joints as directed by makers. Tighten all bolts and make sure that boots are in good condition.

3—Clean universal.

Rear Axle Inspection

1—With wheels jacked up all parts should turn freely. Two to 2½-in. backlash is permissible. Make necessary adjustments.

2—Refill differential with oil recommended by makers. (Heavy steam-engine oil is usually used.)

3—Wipe all oil and grease from differential housing.

Why the Mechanic Should Drive

He Takes More Interest in Job if He is Allowed To Test Car

TO my mind, the main thing that the average mechanic lacks is knowledge of the effect his work produces on the performance of the car. Many repairmen rarely drive, many others cannot drive, and hence are not in a position to understand the requirements of their work.

When the mechanic is also a driver, the car ceases to be an inanimate thing, and takes on life. Routine jobs assume importance when their effect is known. The workman says, "Wait until you see this old bus take that hill after I get these valves ground. Doped one up last week that would hardly take it on low before, now she hits the top on high." Then he gives the valve a few more twists, and checks up the timing.

The repairman, therefore, becomes a better repairman when he learns to drive, and should insist that his work for a time be such that he have to learn. He will take more interest in his work, and will do it more intelligently.—William McIlvrid, Colt-Stratton Co., New York.

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Winnipeg Organizes *For* Better Business

100 Dealers Who Really Co-operate

WINNIPEG, Man., Feb. 14—The Manitoba Motor Trades Association was formed last night by more than 100 dealers from the Province of Manitoba. Allied with them are a few from Saskatchewan and Alberta, and it is possible the organization may later embrace these three prairie provinces of the dominion.

Many lines of work are contemplated and it is planned to push the project actively during the next few months and to hold a big meeting in Brandon in July during the Brandon fair, which is attended by people from all over the province.

The organization meeting was fathered by the Winnipeg Motor Trade Association, which has been in existence for several years and is doing good work in the trade in this Canadian metropolis. There is no real connection, however, between the city and provincial associations; the members of the Winnipeg association have joined the Manitoba association as individuals and not as an organized unit.

Complete harmony prevails between the men of the city and the country. Whereas many of the territorial associations in "the States" have been formed by the country dealers and garage operators without the co-operation of the distributors, the opposite prevails here and should help make for the success of the Manitoba organization. The distributors realize that a provincial organization will benefit both the large and the small and are willing to do their share and then some to help the work along.

The president of the new association is C. P. Anderson, one of the Winnipeg distributers.

The other officers are divided between the city and country.

Will Have Bulletin Service

One of the activities of the organization will consist of a bulletin service, which will keep the whole trade posted on what is going on and what needs to be done. These bulletins will furnish the basis for work at the Brandon meeting.

A thing in which the whole province is interested is good roads, for where the roads go the cars go and sales result. Much is being done, but closer touch with this work is desired by the trade.

There has been some mail order and cut-price work throughout the province and this will be investigated. One manufacturer who has a standard make of tire is said to be supplying a private brand tire to a mail order house.

Standardized charges have worked for good in Winnipeg and the same idea will be taken up by the country dealers.

Credit exchange is another feature. The jobbers are in the association and when the office is well established it will be possible for a jobber to look up a dealer's credit in Winnipeg and thus avoid delay in shipments.

The Officers

President

C. P. Anderson.....Winnipeg

Secretary-Treasurer

A. C. Emmett.....Winnipeg
(Industrial Bureau Bldg.)

Vice-Presidents

George A. Malcomson...Winnipeg
W. J. McClement.....Brandon
D. Lamont.....Melita
A. R. F. Stelck.....Dauphin
C. A. Congdon.....Newdale
S. T. Tyndall.....Roland
T. B. Mitchell.....Virden

Executive Committee: A. R. Leonard, T. G. Breen, W. H. Williams, Joseph S. St. Mars, D. J. Wright, M. R. Lee and T. Weir, all of Winnipeg. This committee was chosen from Winnipeg to make it easy to secure a quorum for short-call meetings.



PRESIDENT

C. Percy Anderson, Vice-President, Joseph Maw & Co., Winnipeg, Oldsmobile distributer

There are numerous small points for adjustment on dealers' service and car assembly and with the harmony that prevails these should be easily remedied.

Better Business and Accounting

Better business and accounting are not to be overlooked. At the meeting last night Fred Sager, of the Gutta Percha & Rubber Co., read a paper on this subject which suggested valuable lines of work.

The dealers at the organization meeting were enthusiastic. They also were representative men who have salesrooms and garages.

The program of the meeting follows:

Address of Welcome, Mayor of Winnipeg.

Good Roads, Hon. Thomas H. Johnson, Minister of Public Works.

Garage Systems and Service, Fred Sager.

Manitoba Motor Vehicle Act, F. J. C. Cox, chairman of the Legislative Committee of the Manitoba Motor League.

Business Ethics, Capt. Rev. W. J. Hindlay.

Co-operation and Organization, Ray W. Sherman, Motor World.

Sherman told of what has been done by organizations in others sections and cities, what may be done by the new association in Manitoba and what must be done by each individual member if the work is to succeed and not to fail.

The greatest essential is activity by each individual. Letters from the secretary must be read and answered. Action must be taken when the association needs it, and each man must make himself a working part of the whole else the whole can do nothing, and the movement will fail.

The secretarial work is to be handled by A. C. Emmett, secretary of the Mani-

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toba Motor League and the Winnipeg Motor Trades Association, who has had broad experience in this work. The office will be located in the Industrial Bureau Building with the other associations that Emmett represents.

The meeting was held at this time because this is the week of the Curling Bonspiel, when men from all over the Northwest, both sides of the line, come to Winnipeg to take part in these contests and to see the sport. The hotels are packed for about ten days, scores of dealers come in and there was every opportunity for the holding of such a session.

Business as Usual IN CANADA

Mars Has Failed to Stop Our Cousins Across the Border

WINNIPEG, Man., Feb. 14—Despite the greatest war that the world has ever known the prairie provinces of Canada—Manitoba, Saskatchewan and Alberta—are going right along in a business way as though nothing had ever happened.

Canada has sent 350,000 men overseas. Manitoba has since the war began raised $2,000,000 for soldiers' dependents and is distributing it monthly through a big organization known as the Patriotic Fund. Before long the 350,000 soldiers from Canada will be a half million. Everywhere are the brown clad soldiers of the King, and yet—

The prairie provinces last year bought more automobiles than ever before.

Bank clearings are millions ahead of what they were the year before.

More Cars to Sell!.

Dealers and distributers are crying for more cars to sell.

Some of the dealers from the snowbound country towns are wintering in Florida and California and some of the railroads maintain Winnipeg representatives to care for this business.

And, with all the multitude of extra tasks imposed upon them, the prairie provinces have filled Winnipeg this week with thousands of sportsmen for the great Curling Bonspiel.

Canada—especially this part of it—seems to need more than a cataclysm to jar it much. The war is nothing but an added job, to be handled in a business-like way—and that is what is being done. War taxes are heavy in spots but no one complains. The spirit of Canada, which is all optimism, has enabled the dominion to pursue a more or less normal course through all this world turmoil.

The prairie provinces do not contain the numbers of cars that are found in American States, for this is a young country. It is full of undeveloped land and opportunity. And it is growing rapidly. Forty-five years ago Winnipeg was a Hudson's Bay trading post with 215 people. Today it is a metropolis of a quarter of a million, as up-to-date as any other city.

Farmers "Fixed for Life"

Farmers who came here 8 and 10 years ago with nothing have become "fixed for life." The wheat crop this year was about 60 per cent of what it was the year before, but the price is so much higher that some farmers with their poorer crops have made more money than they did in 1915. And a few have not yet been able to ship their 1915 wheat, which means that they are getting 1917 prices for a crop that would have sold for less money had there been freight cars to ship it out.

Immigration has halted since the war began. But it will pick up when the war stops. And meantime the immigrants of a few years ago are becoming the car prospects of today, and the Winnipeg distributers are finding it difficult to get anything like the volume of vehicles they could sell.

Here are a few figures as to cars owned:

Province	1915	1916	Increase	Per Cent increase	Estimated 1917 Sales
Manitoba	9,250	11,352	2,102	22.7	2,576
Saskatchewan.	9,197	13,849	4,652	50.5	6,993
Alberta	5,835	9,211	3,376	58	5,342
	24,282	34,412	10,130	42	14,911

The 42 per cent at the bottom of the "per cent increase" column is that of the totals of 1916 over the totals of 1915. Adding the estimated sales for each province and adding 42 per cent to the total for 1916 sales gives nearly the same result, which is that the three provinces will buy better than 14,000 cars during 1917.

A phenomenal increase of this kind is not uncommon in this part of the world where cities are growing up over night and farmers are stepping from poverty into plenty.

And many of the dealers make lots of money during the warm months. Right now it is very cold. One's breath is visible most of the time and heels crunch at every step out of doors. So it is a fine time to go somewhere else—if a man can afford it. And lots of the dealers CAN afford it.

H. T. Stiles, who operates the Prussia Garage, in Prussia, Sask., a town of about 1200, left for California before Christmas and won't be back until the snow has gone. One man is generally left on the job to attend to any garage business that may develop.

Archie Renuart, who owns the Modern Automobile Co., in Prince Albert, Sask., a town of about 10,000, is wintering in Miami, Fla.

Joseph Begin, who operates the Ponteix Garage, in Ponteix, Sask., is also at Miami for the winter.

Travelers for jobbers and car distributers can cite many instances of this kind.

As to the city dealers, they are having considerable business this winter, as are the garagemen. Winter driving has advanced wonderfully in the last two years. It has been much education and partly the winter top and winter curtains. There are scores of cars in use with nothing but curtains. Many use heaters, and this accessory will have a much bigger sale next winter.

The northwest Canadian car owners—like others up here—doesn't mind the weather. He dresses for it—and enjoys it. The snow is not so heavy as further south and packs down into a fine, smooth road. The country roads are not, of course, passable, because of the sleighgage track, but cars run in great numbers in the cities.

Anti-freeze compounds have practically eliminated all radiator troubles, and about the only difficulty is from chilled lubricants. But nearly all the cars start with a few turns and soon warm up. Lots of them are left standing on the streets in zero-and-below weather.

City Dealers Are Hustling

This is making winter business for the city dealers. In the country there is not so much, although maybe some day the dealers will do as well as a certain Utah dealer who has been selling cars this winter by going out to see prospects on snowshoes.

Many of the rural dealers have other businesses than selling cars. Many operate grain elevators, are coal and lumber men, run land offices, operate stores, banks, implement houses and many other lines of business. But the trend is all the time toward real dealers, men who have salesrooms and can give service. This inability to give service is one of the greatest complaints today against the country dealer in these three provinces. It is one of the works which may be helped by the newly formed Manitoba Motor Trades Association.

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An indication of how the war affected Canada's northwest may be gleaned from the Winnipeg bank clearings. They are given below for a decade. It will be noted that during 1914 and 1915 they fell off, but that by 1916 they are where they would have been had normal progress been made during the first two years of the war. The figures follow:

WINNIPEG BANK CLEARINGS

1907	$599,667,576
1908	614,111,801
1909	770,649,322
1910	953,415,281
1911	1,172,762,142
1912	1,537,817,524
1913	1,634,977,237
1914	1,370,960,806*
1915	1,530,683,124†
1916	2,061,795,257

*Loss. †Less than 1913.

All of these things point to a condition of strong prosperity in the prairie provinces. The Canadians are not a people easily stampeded. Perhaps they are less quick to act in some things than are Americans, but once they begin to act they keep on acting. Right now they believe they have reason for confidence and business progress, not for fright and depression, so they are spending money for things just as they did before the war began.

Brown Heads New York Dealers

NEW YORK, Feb. 17—Charles M. Brown, of the New York branch of the Winton Co., was elected president of the Automobile Dealers Association, Inc., of New York. Other officers elected were: Secretary and treasurer, Wm. Parkinson, Stutz Motor Car Co.; vice-president, William C. Poertner, Poertner Motor Car Co.; general manager, Charles A. Stewart.

Cork Facings For Clutches

INDIANAPOLIS, Feb. 17—There is a possibility of using complete clutch facings of cork for both disk and cone clutches, instead of employing the corks simply as inserts. Recent tests in the laboratory and in actual road work seem to show that special compositions of cork in the form of disks and sheets may be made to replace leather and fabricated clutch facings and offer improvement in operation of the clutch. This announcement was made by Engineer Young of the Armstrong Cork Co. during the discussion of a paper on the production of cork and manufacture of cork products delivered last night before the Indiana section of the Society of Automotive Engineers, by H. W. Prentis, Jr., manager of the publicity department of the Armstrong company. The manufacture of cork clutch inserts, carbureter floats, gaskets, etc., was explained and illustrated by slides and the making of linoleum such as used for running boards was illustrated by moving pictures.

What the Local Shows Are Doing

Cleveland Declares a Dividend—Clarksburg and Canton Set Dates—Other Notes

CLEVELAND, Feb. 13—A dividend of 90 per cent was declared by the Cleveland Automobile Show Co. on the automobile show held Dec. 30 to Jan. 6, at the Wigmore Coliseum. This was on the space rental of the exhibitors who are stockholders, and is next to the largest dividend ever declared. Last year 100 per cent was declared, and this year's would have been as large and possibly more if it were not for more stockholders this year, among whom the profits were divided.

Clarksburg To Hold Show

CLARKSBURG, W. VA., Feb. 17—The Clarksburg Automobile Dealers' Association will hold its first show March 15, 16, 17. Following is the committee appointed to have charge of it: Chairman, R. C. Randolph, D. B. Williams, Ray Cuppett, Joseph Newcomer. The show is to be held in the Glen Elk Skating Rink.

Canton Schedules Show March 7-14

CANTON, O., Feb. 17—Arrangements have been completed for a show for Canton, O., to be held March 7 to 14. Thirty-one dealers have united in giving the show, which will be in charge of a committee consisting of P. E. Moock as chairman and four other dealers. The new show rooms of the Motor Car Co. will be used to give the show.

Frederick Closes Third Show

FREDERICK, MD., Feb. 17—Frederick's third annual automobile show came to a close last night after 4 days of exhibition in the state armory. Forty-one cars were shown by 24 dealers and they included, with few exceptions, the same cars that were shown at Baltimore.

Nashville Votes Show a Success

NASHVILLE, TENN., Feb. 19—With an attendance of more than 30,000, a large proportion of whom were live prospects, the Nashville automobile show, which was opened on February 12 and closed to-night, was the most successful held by Nashville dealers. Twenty-two dealers had displays, showing 28 makes, in addition to accessory concerns.

Greater interest in the cars was shown this year than ever before, according to leading dealers, and the number and character of inquiries received indicate a record-breaking spring business. Practically every dealer in middle Tennessee and many from southern Kentucky and northern Alabama attended and several agencies were placed by distributers.

Oregon Dealers Hear Reeves

PORTLAND, OHIO, Feb. 19—Dealers and salesmen of Portland, Ore., turned out in force during the past week to welcome General Manager Alfred Reeves of the N. A. C. C. at the banquet in the Hotel Benson given in his honor. In addition to Reeves as guest of honor was F. E. Moskovics of the Nordyke & Marmon Co.; M. O. Wilkins, president of the Dealers' Motor Car Association of Oregon, who presided; W. C. Bristol, toastmaster; W. D. B. Dodson, Judge Robert G. Morrow, A. B. Manley and Will C. Saunders were other speakers.

Bloomington Tackles Used Cars

BLOOMINGTON, ILL., Feb. 19—The Bloomington Automobile Trade Association has appointed a committee of six to investigate the used car situation and make a report upon the most satisfactory method of disposing of such property. The majority appear to favor a central depot to be in charge of an expert salesman and appraiser, who will be the sole judge of the value of such a car. All used cars, taken by dealers, will be stored and the salesman will be given a commission upon each car sold. A minority favors a quarterly public auction.

Columbus Dodge Dealer Entertains

COLUMBUS, O., Feb. 17—The Ohio Auto Sales Co., Dodge dealer, entertained its dealers and salesmen at luncheon at the Virginia Hotel. A. T. Stanton and H. S. Graham, representatives of Dodge Bros., gave talks at the luncheon. One of the interesting features of Stanton's talk was on the freight condition in Detroit. The embargo has so completely tied up shipping that it is almost impossible to get freight equipment of any sort, making it necessary, therefore, for dealers with big contracts to drive motor cars from Detroit continually.

Illinois Wants New Lien Law

CHICAGO, Feb. 19—The Garage Owners' Association of Illinois is actively urging the passage of a bill to amend the present Illinois lien law. The amendments would make the law cover vehicles on which work is done except where the car is sold on a conditional bill of sale; would permit the repossession of the car wherever it might be found in Illinois; would permit the garageman to sell the car to satisfy the lien; and defines a garageman.

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Accessories & Supplies



CLARK CYLINDER GRINDER

Pennypacker Mfg. Co., Los Angeles.

A cylinder grinder with automatic feed for cylinders of all sizes and types. It is belt-driven and equipment includes pulleys, belting, countershaft, blower, suction hose, grinding wheels, diamond truing wheel, clamping dogs, etc. Weight 700 lb. There are two spindles: one for grinding holes, 2 in. or more in diameter and 12 in. long, and the other for holes up to 6 in. diameter and 15 in. long. The spindles can be changed instantly. There are three grinding wheels. One-half to 1 h.p. is required.

GATES RADIATOR COVER

Gates Mfg. Co., Indianapolis. PRICE, delivered, $1.25; hood cover, 90 cents extra; radiator covers per dozen, $12; hood covers, $6 per dozen.

This radiator cover is made of Fabrikoid lined with heavy felt and may be readily attached and is quickly opened and closed.

STEWART ALUMINUM SOLDER

Stewart Aluminum Compound Co., 5027 Broad Street, Pittsburgh, Pa. PRICE, per package, 75 cents; per lb., $2.50.

This solder is a special compound blended from several metals and may be used for repairing all sizes of breaks. A blow torch and an old case knife are all that is required, and it is said that anyone can make a successful repair. It does not flow like solder but is pasty and may be worked like putty.

TON-A-FORD

Ton-A-Ford Truck Co., Racine, Wis. PRICE, $345.

A one-ton extension for the Ford chassis has the drive by side chains. The original Ford axle is retained, chain sprockets being mounted on the ends. The frame is 4-in. channel, 34 in. wide, springs are 2 x 44 in. and there is a release spring over the axle. Tires are Goodrich, solid rubber, 32 x 3½; gear ratio 7 to 1; wheelbase 127 in. An automatic oiling system to take care of the increased load is supplied.

WESTERN TRUCK ATTACHMENT

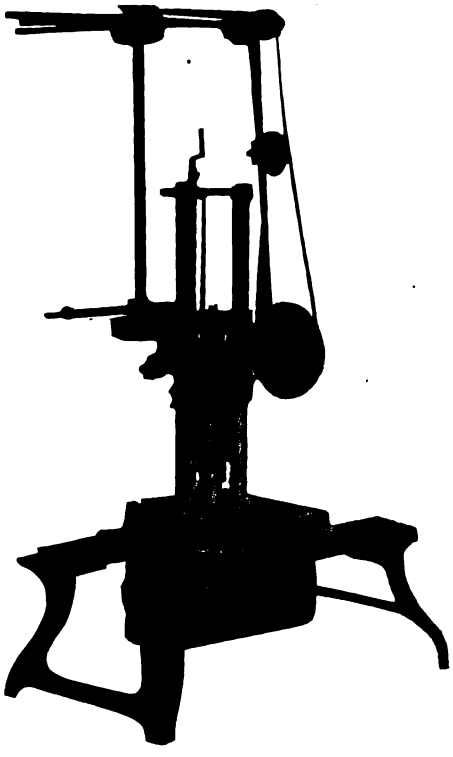
Western Truck Attachment Co., Seattle, Wash.

This truck attachment for Fords sells for $350 and converts the car into a one-ton truck. It is chain driven from sprockets on the Ford axle ends. The weight of the truck and 90 per cent of its load is carried on the rear axle. Service brakes are on the rear wheels and emergency brakes on the jackshaft. Springs are semi-elliptic and are mounted outside the frame so that the floor of the truck is as low as possible. Drive is taken through radius rods of the pin and bushing type. The channel section of the frame is 4 in. deep, the weight of the attachment alone is said to be 960 lb., and complete with Ford chassis 1910 lb.

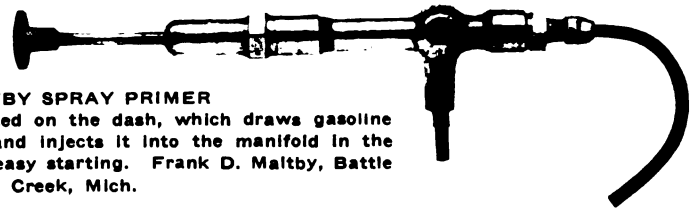
G. L. W. SPRING OILER

G. L. W. Spring Oiler Co., San Diego, Cal. PRICE, 20 cents.

This consists of a metal covered felt pad, which lies flat on the top leaf of the spring. The felt is hollowed out in the center and carries a quantity of oil which gradually works its way down over the sides of the spring leaves and disappears in between them, thus lubricating them. The pad is attached by snapping it in place.

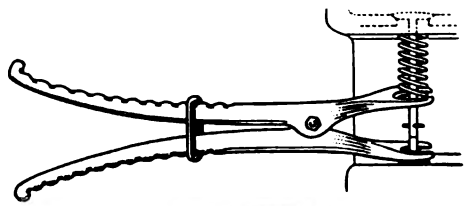


Clark cylinder grinder with cylinder block in place



MALTBY SPRAY PRIMER

A syringe primer mounted on the dash, which draws gasoline from the main supply and injects it into the manifold in the form of a spray to give easy starting. Frank D. Maltby, Battle Creek, Mich.



BEST VALVE LIFTER

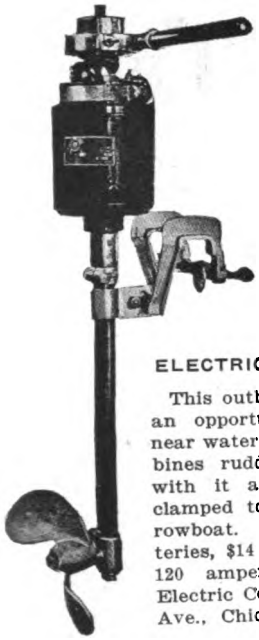
Malleable iron valve remover. The ring on the handles holds the spring up leaving both hands free. Price, 50 cents. Fish-Best Co., Grand Rapids, Mich.



MARTIN FIFTH WHEEL

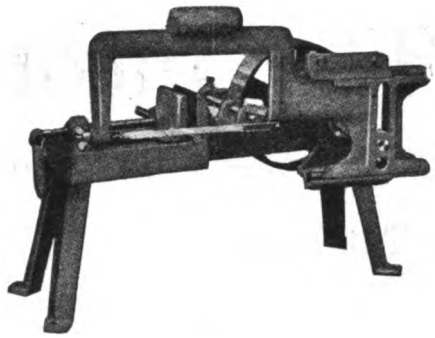
A standard 2-ton truck and trailer joined with the Martin rocking fifth wheel. This combination gives a vehicle with 6 tons capacity. Martin Rocking Fifth Wheel Co., Springfield, Mass.

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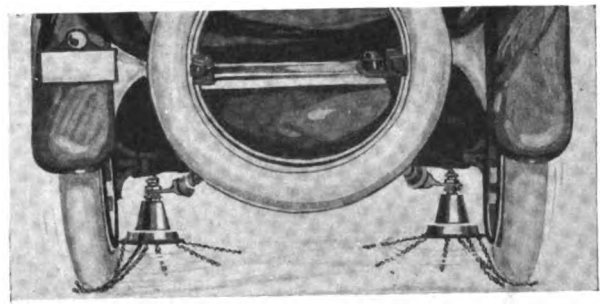
ELECTRIC BOAT MOTOR

This outboard motor offers an opportunity for dealers near water. The motor combines rudder and propeller with it and is quickly clamped to the back of the rowboat. Price, $75. Batteries, $14 to $30, from 60 to 120 ampere hours. — Jewel Electric Co., 112 North Fifth Ave., Chicago.



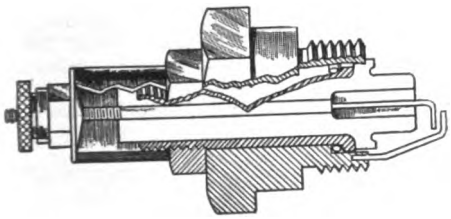
E & S POWER SAW

A small, high-speed saw selling for $18. It has a 4 x 4 in. capacity and is belt-driven, although a hand crank can be furnished. It has an automatic stop.—Ellis Smith Mfg. Co., 216 Niagara Street, Buffalo, N. Y.



THORN SKID CHAIN

The chains are thrown under the tire by centrifgual force. The drum carrying the chains is rotated by a disk mounted on the inner side of the wheel. When not in use it is pulled up horizontal by operating a lever in the driver's compartment.—Hill Insulating & Mfg. Corp., New York.



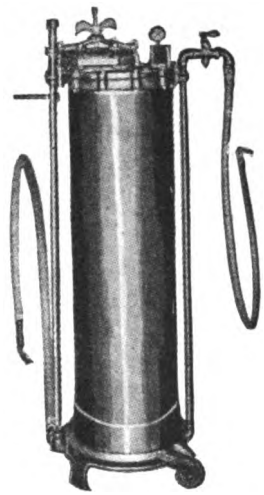
LA FRENCH SPARK PLUG

The construction is unusual in that the insulator is baked in an independent steel shell which fits in the outer shell, and the upper part of the porcelain is protected by Bakelite. Made in ½ and ⅞ in. Price, $1.—La French Spark Plug Co., 1019 Superior Ave., Dayton, O.



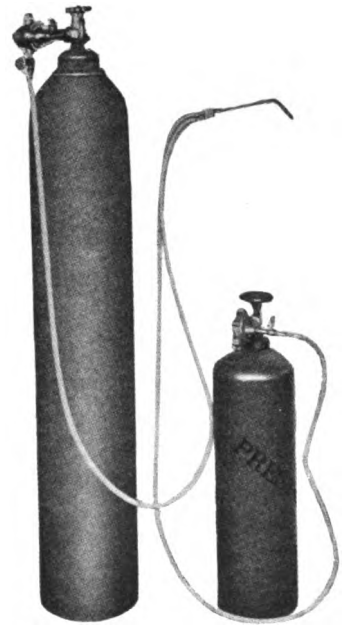
FYR-FYTER EXTINGUISHER

Will send a powerful stream 25 or 30 ft. It is operated by pumping the handle. The stream may be shut off instantly. A feature is the lubrication of the piston to make pumping easier. —Fyr-Fyter Co., 100 Patterson Bldg., Dayton, O.



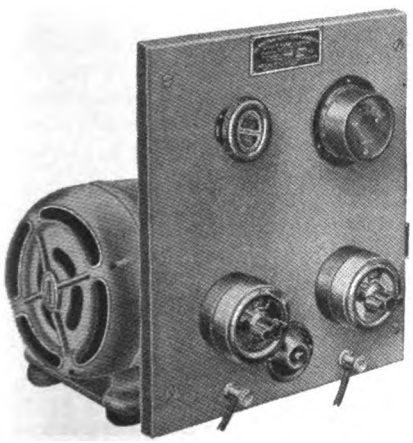
BOE DUAL GREASE GUN

A grease and oil gun with a 100-lb. capacity, 4 lb. grease and 8½ gal. oil. Both may be measured and dispensed at the same time. The lubricant is forced out by compressed air. Price, $40.—H. M. Boe, 2416 University Ave., S. E., Minneapolis, Minn.



PREST-O-LITE LEAD BURNING OUTFIT

An oxy-acetylene outfit for lead burning. It is known as the type L and consists of a blowpipe of the equal pressure type. Both gas passages are fitted with back-fire chambers; tips for large and small work, and two 3-lb. pressure regulators. Price, $19, complete.—Prest-O-Lite Co., Indianapolis.

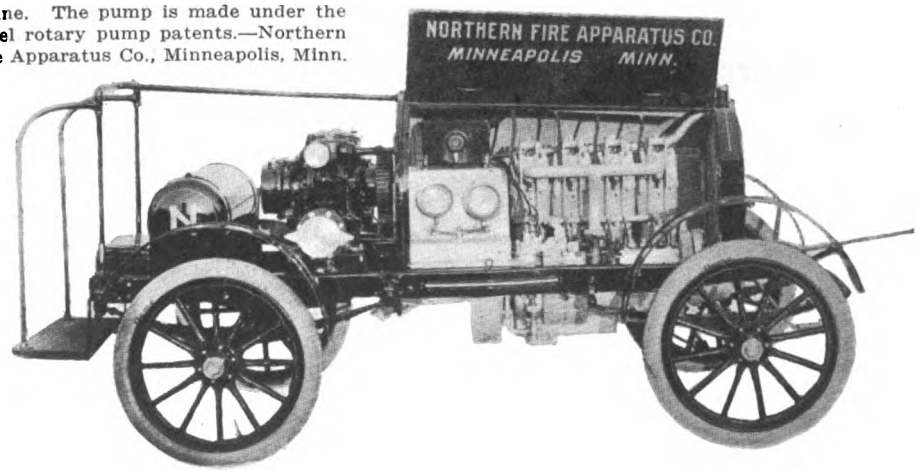


ELLINGTON BATTERY CHARGER

A motor-generator set with both armatures on one shaft, combined with a switchboard, for charging storage batteries. It will operate on 110 or 220 volt alternating current, and will charge from one to five sets of 6-volt batteries. There is a rheostat for controlling the charging current, and ammeter, snap switches running to batteries and motor, and starting button.—Ellington Electric Co., Quincy, Ill.

NORTHERN TRAILERPUMP

The advantages are low price and light weight. It pumps 410 gal. per min. and delivers it at a 135 lb. pressure. It is operated by a four-cylinder engine. The pump is made under the Pagel rotary pump patents.—Northern Fire Apparatus Co., Minneapolis, Minn.



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Untangling The Income Tax

AFTER all, the Federal Income Tax Law is not such a much mixed matter. If your income is over $3000 and you're single, you pay and if you're married you must pay a tax on an income over $4000. The hard part is making out the forms. This article tells how

By Geo. F. Kaiser

ARE you going to pay an income tax this year? If you are not married and have an income of more than $3,000 per year you will have to do so.

If you are married and living with your wife, a tax need only be paid on the amount of your combined incomes over $4,000.

If you are married but are living permanently apart from your wife, and if the income of either of you is over $3,000, a tax will have to be paid on the excess.

In other words, no matter what the income, if you are single, $3,000 is exempt from taxation, and if married $4,000 is exempt.

An incorporated business must pay a tax no matter how small its income may be.

If you and John Jones happen to be doing business as partners under the name of Smith & Jones, the firm of Smith & Jones need file no partnership return or pay any partnership tax, but, of course, both you and Jones must file your own individual returns, and pay the tax which is due from each of you as individuals.

The following table will give a good idea of the tax to be paid in the different cases, which is at the rate of 2 per cent after Jan. 1, 1917.

Unmarried Persons

Income	Amount Taxable	Tax
$3,600	$600	2 per cent or $12
7,900	4,900	2 per cent or 98

Married Persons

Income		Amount Taxable	Tax
Husband	$3,600	$4,000	None
Wife	400		None
Husband	$18,000	$16,000	2% or $320
Wife	2,000		

These examples are only for those who have incomes of not more than $20,000. If an income exceeds $20,000 there is an additional tax as follows:

	On amounts between	
1 per cent.....	$20,000	$40,000
2 " "	40,000	60,000
3 " "	60,000	80,000
4 " "	80,000	100,000
5 " "	100,000	150,000
6 " "	150,000	200,000
7 " "	200,000	250,000
8 " "	250,000	300,000
9 " "	300,000	500,000
10 " "	500,000	1,000,000
11 " "	1,000,000	1,500,000
12 " "	1,500,000	2,000,000
13 " "	2,000,000	.....

Thus if an unmarried person's income happened to be $25,000 he would pay his tax as follows:

Income	$25,000
Exemption	3,000
Taxable income	$22,000

On $20,000 of this he would pay 2 per cent, or $400, and on $2,000 he would pay the additional tax of 1 plus 2 per cent, or $60, making his entire tax $460.

No matter what part of the United States you live, you must file a return, as all parts are included, even the territories and District of Columbia, Alaska, Porto Rico and the Philippines.

If you are in the tax paying class, be sure to file a return on or before March 1. By a return is meant a report. We use the word return because that is the word you should use when you apply for a blank form at the office of the Collector of Internal Revenue for your district.

The fact that no return has been sent to you is no excuse if you are liable to pay a tax, so be sure and get one.

If you don't know where the Collector for your district is, ask your local bank, and they will be able to tell you. There are 63 of these districts, too many to set out here.

If you fail to file your return you may have to pay a penalty of from $20 to $1,000, and if you make a false or fraudulent return you can be punished by a fine of not more than $2,000 or by imprisonment for not more than one year or both, together with the costs of the prosecution, for it is a misdemeanor to make a false or fraudulent return.

In making out your returns for this tax you are required to list all your income under the following classifications:

1. Salaries, wages and commissions.
2. Any income received from any profession or vocation.
3. Any income received from any business, trade, commerce, sales or dealing in real estate or personal property.
4. Any income received as rent.
5. Any money received as interest on bonds, deeds of trust or other similar obligations which are issued by domestic corporations, joint stock companies, associations and insurance companies.
6. Any money received as interest on notes, mortgages and bank accounts.
7. Any profits made out of a partnership.
8. All income received from guardians, trustees, executors, administrators receivers, conservators or other persons acting in a fiduciary capacity.
9. Any interest upon bonds, etc., issued in foreign countries, and dividends upon the stock of foreign corporations, etc., engaged in business in foreign countries.
10. Royalties from mines, oil wells, patents, franchise or other legalized privileges.
11. Other sources not enumerated above.

In filling out the eleventh paragraph you must be sure and state from what sources the particular income is received.

The claims made by you for deduction from your income must be set out in the following order:

1. The amount of necessary expenses actually paid within the calendar year for which the return is made in carrying on any individual business (There must not be included under this head personal, living or family expenses, business expenses of partnerships, or costs of merchandise). Amounts paid for permanent improvement or betterment of property are not proper expense deductions.
2. All interest paid within the year on personal indebtedness of taxpayer.
3. All national, foreign, state or county, school and municipal taxes or taxes imposed by another tax paying subdivisions of any state paid within the year, not including those assessed against local benefits.
4. Losses actually sustained during the year incurred in business or trade or arising from fires, storms, shipwreck or other casualty and from theft not compensated for by insurance or otherwise.
   NOTE: State (a) of what the loss consisted, (b) when it was actually sustained, (c) how it was determined to be a loss, (d) if sustained before March 1, 1913, the fair market price or value as of that date and how such value was determined.
5. Losses sustained during the year in trans-

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actions entered into for profit but not connected with your business or trade (No amount in excess of aggregate income from the sources is allowable).
NOTE: State total income during the year from such transactions ($), Give the same information called for in NOTE under number 4.

6. Debts past due which have been actually ascertained to be worthless and which have been charged off within the year.
NOTE: State (a) of what the debts consist, (b) when they were created, (c) when they became due, (d) how they were actually determined to be worthless and (e) whether included as income in this or previous return.
7. Amount representing a reasonable allowance for the depreciation of property arising out of its use or employment in business or trade. (No deduction is allowable for any amount of expense of restoring property or making good the exhaustion thereof for which an allowance is made in this return or for depreciation of residential property not maintained for rental; in the case of buildings depreciation is to be computed exclusive of cost of land.)
NOTE: State (a) the kind of property of which depreciation is taken (if building, state when erected and of what material constructed), (b) cost of same, (c) what percentage of depreciation is claimed.
8. Amount representing a reasonable allowance for depletion. (a) in the case of oil and gas wells for actual reduction in flow and production, (b) in the case of mines not exceeding the market value in the mine of the product sold during the year for which return is made.
NOTE: The depletion allowable shall be at a rate which during the estimate of life of the property being depleted will return.
The cost of the property if acquired after March 1, 1913, or
The fair market value as of March 1, 1913, if acquired before that date.
State (a) the cost of property if purchased after March 1, 1913, (b) the fair market value as of March 1, 1913, if purchased prior to that date, (c) how such value is determined, (d) the basis upon which the amount of depletion claimed is computed.

All persons, firms and corporations who pay rents, salaries or other yearly amounts over $3,000 per year must hold back 2 per cent after Jan. 1, 1917, on the amount, and pay it to the Government for the person from whom it is withheld, and must file a separate return showing the name and address of the person and the amount of income on which the tax is withheld.

This applies only to the regular tax, the additional tax on amounts over $20,000 is collected by the Government from the person who has that income.

Of course if a dealer happened to have a salary of over $3,000 (or $4,000 if married) and his employer withheld the tax, the dealer would have to note that fact in his own personal return in order to get credit for it.

If, because of payment of taxes or other items, the dealer's income were less than the taxable amount, although he received a salary of over $3,000 (or $4,000 if married) he can file a signed notice showing all his income and all the deductions claimed by him with the party paying the salary or rent, etc., and then this notice is in turn filed by that party with the Collector in order to release himself from liability for not withholding the tax.

Forms for this purpose can also be procured at the Collector's office.

Corporations

All corporations must file returns and pay an income tax, no matter how small the income may be. If a dealer who has incorporated his business fails to file a return before March 2 his corporation may have to pay a penalty up to $10,000 and 50 per cent tax in addition to the regular tax as a penalty.

If a false return should be made, 100 per cent could be added to the tax in addition to the penalty, and the officer who made the false return could be held guilty of a misdemeanor and fined not more than $2,000, with imprisonment for not more than one year. The corporation tax is 2 per cent.

When corporations file their returns they must set out their incomes in the following order:

INCOME

1. From operations.
2. From rentals.
3. From interest.
4. From dividends.
5. From other sources.

EXEMPTION

The charges which they wish to take advantage of must be specified as follows:

1. Expenses, general.
2. Payments in lieu of rent.
3. Losses sustained charged off.
4. Depreciation charged off.
5. Depletion charged off.
6. Interest paid.
7. Interest paid by banks on deposits.
8. Taxes, domestic paid.
9. Taxes, foreign paid.

As this article was prepared for MOTOR WORLD dealers all provisions relating to non-resident aliens or citizens, administrators, executors, trustees and the like have been included.

Wants Ohio Gasoline Investigation

COLUMBUS, O., Feb. 17—Investigation why gasoline costs 5 cents more a gallon in Ohio than in Indiana and Michigan is demanded in a resolution by Representative Chester of Paulding County. He declares Ohioans the last two years paid $10,000,000 more for gasoline than they would have done in either of the other two States.

Branches in 10 Cities for Sexton

CHICAGO, Feb. 17—The Sexton Oil Co. will establish factory branches in ten trade centers. Probably these will include Boston, Cleveland, New York, Albany, Omaha, Memphis, Los Angeles, Charleston and Savannah.

These Men Will Stage The Des Moines Show



Officers of the Des Moines Automobile Dealers Association

C. L. HERRING, treasurer *V. W. REYNOLDS, director* *ROSS J. CLEMONS, director* *W. W. SEARS, vice-president* *E. G. RAFFENSBERGER, director* *DEAN SCHOOLER, director* *C. G. VAN VLIET, secretary*

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Do It This Way — QUERIES ANSWERED

How To Lap Pistons and Piston Rings

EDITOR Motor World: I would like some information on the best method on installing new pistons and rings in both old and new cylinders. Is it always necessary to lap the rings and pistons in, and if so, how should this be done, and what kind of compound for lapping is best?

When putting a new ring on an old piston and installing same in an old cylinder is it necessary to lap this one new ring in the old cylinder.

After reboring a cylinder is it necessary to lap the new oversize piston and rings in the rebored cylinder?

What is the best indication that a piston or ring has been lapped enough?

In lapping should the piston and rings be held in the position in which they will work in the motor, I mean should they be held in the same position that they will occupy when attached to the crankshaft?—O. F. Marshall, White Front Garage, Gallatin, Tenn.

If the cylinder surfaces are in good condition only the rings need be lapped. The purpose in lapping the rings is to make them fit tightly against the cylinder surfaces.

The lapping process consists in moving the rings back and forth in the cylinders in the presence of a mixture of ground glass and cylinder oil, or carborundum and cylinder oil. The abrasives should be the finest obtainable.

When the rings bear all around the work is finished. This can be seen with the naked eye.

Rings may be placed in an old piston. A new piston should not be used because it will wear away to some extent and this is objectionable. Fig. 5 shows how the lapping is accomplished. Another method is to cut off the head of the piston and use the wristpin for a handle, as shown in Fig. 6.

When no piston is available the rings may be lapped between two blocks of wood as shown in Fig. 4.

If the cylinders are slightly scored they should be lapped with an old piston. It is not desirable to use a new piston because it will be worn away and for the same reason new rings should not be used in the piston during the lapping process.

If the cylinders are badly scored an old piston with old rings should be used and after all marks are removed the new rings should be lapped in place, using an old piston.

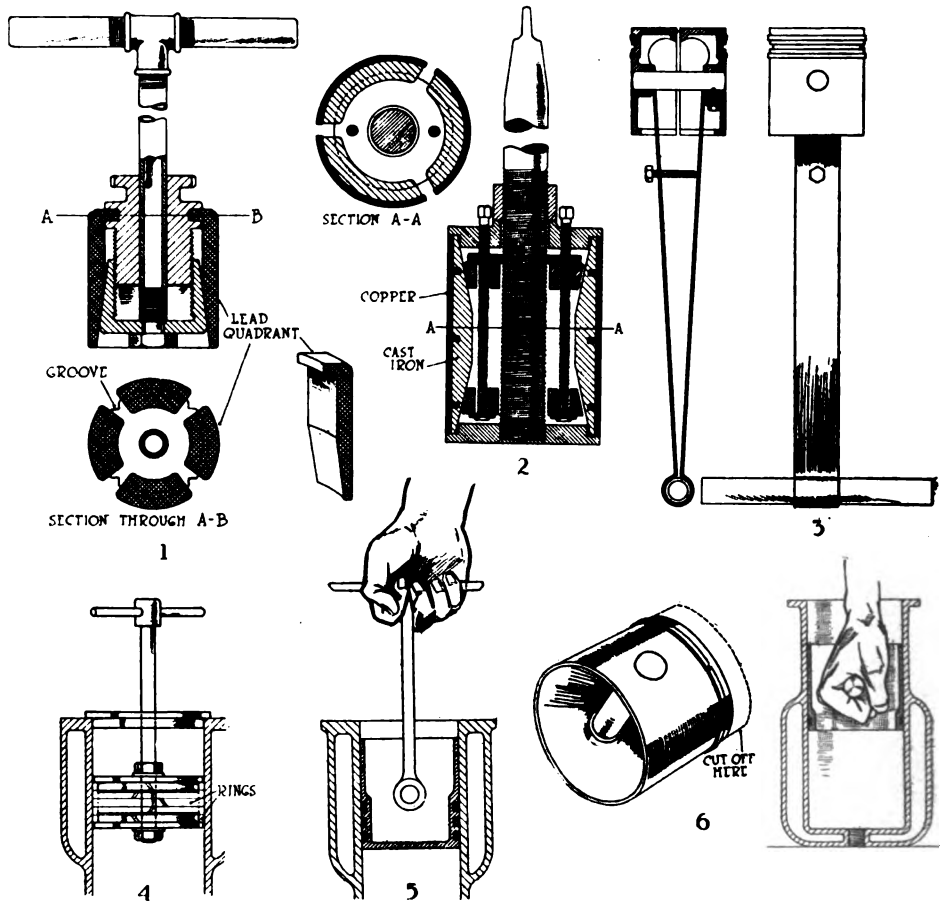
When the cylinders are badly scored an expanding lapper may be used instead of the old pistons.

Fig. 7 shows a simple expanding lapper made from an old piston. A piece of tubing is brazed into one piston boss and another tube to fit snugly inside of it is brazed into the other boss. The two halves are kept in line by slotting the two tubes and inserting the member shown at the bottom of the sketch in these slots. Adjustment is obtained by screwing out on the screw as illustrated.

An expanding piston lapper which may be used for lapping rings or cylinders is shown in Fig. 3. The two operations should not be simultaneous, however. When the cylinders are slightly scored, the marks should be removed first and then the new rings should be lapped in.

Fig. 9 consists of a tapered arbor over which is placed a lead sleeve; the position of the sleeve determining the exact diameter of the tool. The arbor has a key which prevents slipping. The sleeve is cast in place and then the slot is cut to receive the key. The expansion of the tool is accomplished by driving it further up the arbor. Reduction in size is obtained by moving it in the opposite direction and compressing it.

Fig. 8 shows how a cylindrical block of wood, closely fitting the cylinder bore, may be used when an old piston is not available. Emery and oil are put on the cylinders and the lapping proceeds in the ordinary way. Grooves are cut in the surfaces to aid in the distribution of the abrasive. Adjustment for wear is provided by a slit which is opened by a wedge.

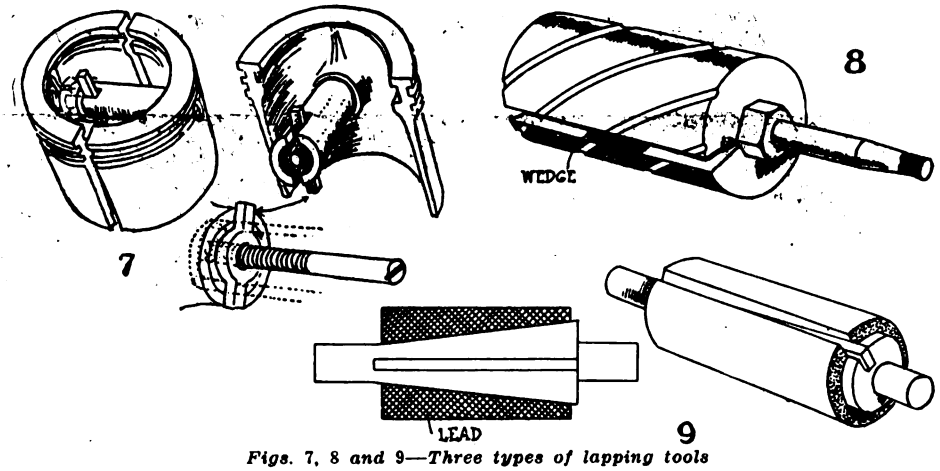


Figs. 1 to 6 inclusive showing various tools for lapping pistons and rings

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Fig. 2 shows a simple design of an expanding lapper. Such a tool as this may be used in the drill press, an up and down and rotary motion being supplied at the same time. Fig. 1 shows another tool of this type. Its construction is readily understood.

Aluminum pistons cannot be treated in the same way as cast iron because they are too soft. High spots on the pistons may be removed by means of a semi-cylindrical brass lap shown, into which the piston fits.



Figs. 7, 8 and 9—Three types of lapping tools

Reasons for Overheating in Winter

Editor Motor World: We have been having quite an argument as to why the radiators of several different makes of cars, do not seem to cool the water sufficiently in cold weather, causing the motor to overheat and the radiator to steam. All of us have a lot of theories, but none of us has a good one, so please explain the reason.—Fisk Rubber Co., Oklahoma City, Okla.

Quite often overheating is due to slush collecting in the coolest part of the system. This happens just as often when the car is running as when it is standing and sometimes the slush turns to ice and breaks some of the parts. The action of the slush or ice is to prevent circulation with the result that boiling occurs in the hottest part of the system. The best remedy is to use a good anti-freezing mixture. Also see that there is nothing to impede the circulation.

In addition the overheating of a car in cold weather may be due to the same causes which might make it overheat in warm weather. Other than this the overheating may be produced by some defect in the cooling solution or to neglect because the weather is cold.

The difference in temperature between summer and winter is, roughly speaking, not over 50 deg. and this is not sufficient to compensate for neglect of the cooling system or the motor, or for defects in them. In other words excess carbon, bad mixture, a late spark, or loose fan belt or any of the other conditions which will cause overheating in warm weather might readily produce the same effect in cold weather, particularly if two or more of these conditions occurred at once. Thus, a loose fan belt, in connection with a radiator half full of water might easily cause the trouble although either one alone might not be sufficient.

Overheating in winter may be due to neglect. The owner does not feel that the cooling system requires the same careful attention; for one thing he does not look at the height of the water as often, consequently he often runs the car with the water too low. This may cause overheating on any car, but is particularly likely to give trouble with the thermo-syphon system. As soon as the water level drops below the top pipe into the radiator boiling is almost sure to occur.

The motor is called upon to do more work in winter, the roads are harder to drive over and snow and mud calls for a much greater expenditure of power. This means running with wider throttle and calls for more second and low gear work. The motorist may assume that no matter how strenuous the conditions are there is no danger in overheating the motor and consequently this very thing occurs. In operating a motor continuously near its full load capacity in summer, he would be careful to see that he did not bring the cooling water to the boiling point, but in winter he forgets about this possibility. He is also more careless about having the spark advanced the proper amount.

Inasmuch as alcohol is more volatile than water there is great danger of the alcohol boiling away and if it is not renewed, cooling trouble will result.

Why the Accessory Store Should Be on Main Street

(*Continued from page* 35.)

cars. You should see that every owner in town knows about this plug.

Accessory Salesmanship Required

If you will give the accessory department the same careful attention that you do your car sales and if you will use the same methods, the same energy and the same intelligence, you will be surprised at the increase in the volume of your business and then you will realize why we placed the accessory store on the main street. The side street may be nearly as good, but you want the best location for your accessory store.

In paragraph two you suggest that the accessory store be back of the showroom and cut off from it by an arch. In other words you mean to hide your accessories back of your cars. You can't sell accessories without showing them, any more than you can sell cars without showing them. In fact, it is more essential to display your accessories so that passers-by may see them than it is your cars. Every one in your town knows what models of these cars there are, but there isn't one man in your town that knows every accessory you have in stock. You have a great many things in stock which a great many people in your town would like to buy if they only knew about it. A great many more people who come into your store have it on their minds to buy certain things, but go without making the purchases simply because they forget. If you had things in sight they would be reminded; you would make many more sales. There are many people who have never been in your store. If you had an attractive showcase for accessories on the main street sooner or later they would be coming in.

The further advantage of having the store where we have placed it rather than in an alcove back of the showroom, is that it is easier to enter the store.

Phones Main 83, A 3138 Open Day and Night

PRICE SCHEDULE

Effective June 1, 1916

COTILLION GARAGE

GENERAL REPAIRING AND OVERHAULING
ESTIMATES GIVEN BY THOROUGH MECHANICS

490 Burnside Street J. Ruegg, Prop.

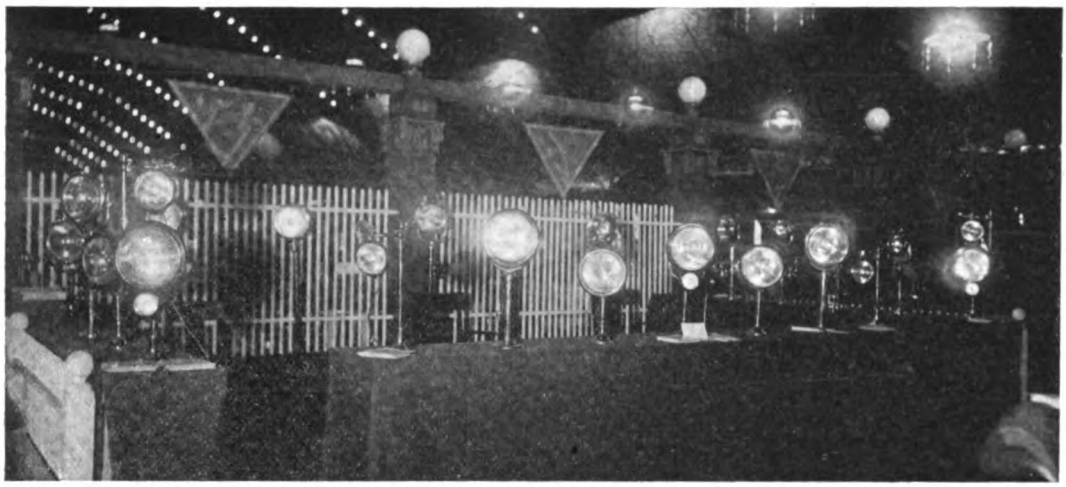
Storage, Lower Floor, per month	$7.50
Storage, Lower Floor only, per night	.50
Storage, Lower Floor only, per week	2.00
Upper Floor Storage Limited, per month	5.00
Washing	1.00
Washing and Polishing, Brass or Nickel	1.50
Body Polish, up from	.75
Greasing Car	.75
Changing Tire in Garage	.50
Repairing Punctures to 1 in. diam. in Tubes	.25
Use of wash rack, water, lights, hose, wringer	.50

Tires and Tubes, your choice sold at List Prices Only

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Show Exhibits with a Merchandising Flavor

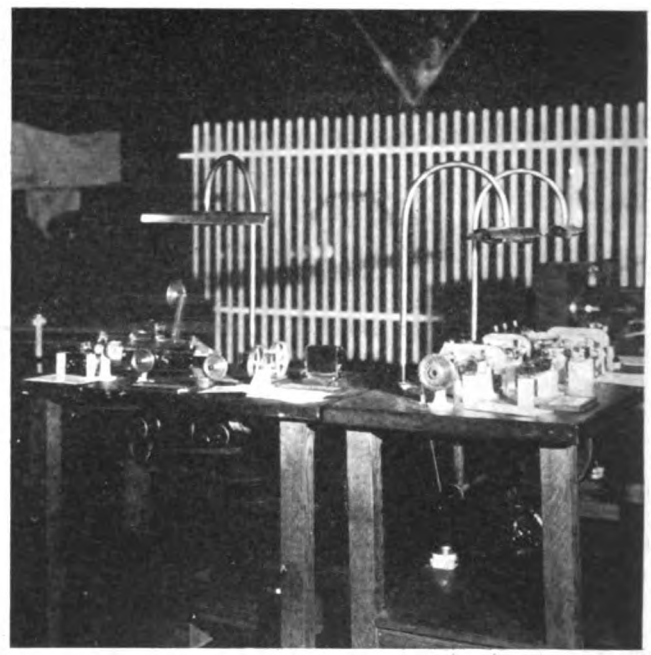
These are all from the Chicago Show



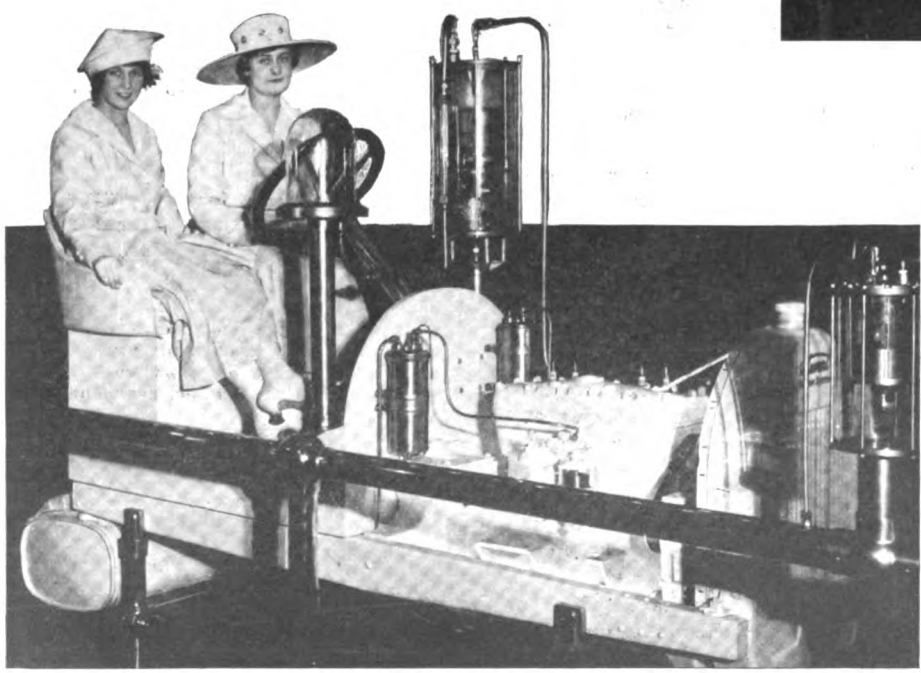
Anything in lights? The Badger Brass Mfg. Co. booth in the south gallery, pictured at the left, displays a wide variety of head lamps. Nineteen, count 'em, are placed out for inspection, some of them are double, and one triple. Note assortment of dimming devices: the shading or deflecting rays type, and the small bulb with headlight models. The photograph shows also several styles of brackets.



Prest-O-Lite in the northwest gallery used a mammoth model of its storage battery to attract attention.



People, like moths and sunflowers, always turn to the light. The exhibit pictured above used lamps with reflectors to direct attention to the more interesting features of the display



Many persons develop 60 m.p.h. going past the accessory booths, but everyone put on the brakes at the Stewart-Warner exhibit. Oh, yes, the picture shows a gasoline vacuum feed system, attached to an engine, ready for use.

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Car Shortage Hindering Dealers All Over U. S.

Shipments from West Weeks Late —Future Uncertain—Manufacturers Attempt Remedies

NEW YORK, Feb. 19—Dealers in New York are going to be right up against it within the next 30 days unless there is a sharp turn for the better in the freight car situation. Inquiry among the Broadway distributers to-day revealed the fact that very few of the Eastern agents know where their next cars are to come from. The shipments from Detroit and other western points have been from 3 days to 5 weeks late, and in but few cases have the dealers been able to get as many cars as they asked for.

Several companies are taking special methods to relieve the freight shortage situation. Willys-Overland gets one trainload of cars from New York weekly, and has to unload the train immediately and return it. The company can make no individual shipments. Studebaker is using the greater part of its traffic force in the actual physical work of spotting empty freight cars and getting them loaded. The company also has a follow-up system which keeps track of each car and sees to it that the dealer unloads quickly.

There are no freight shipments at all out of Pontiac, Mich., which means that the Oakland cars are all coming East by express and are going to nearby points under their own power. Buick and many other companies report that when the spring rush comes the chief way that New Yorkers will be able to get cars will be to have the automobiles driven out from the factories under their own power.

The headquarters of the trouble is at Detroit. At one time there were 25,000 loaded cars in the city awaiting shipment. Once they get started it is hard to get past Buffalo. "An order that would usually get to us in 7 days from the factories now takes from 3 to 4 weeks," this expression of opinion from one of the Broadway dealers is characteristic of the testimony all along the row. The Chicago situation is as bad.

Chicago in Trouble, Too

CHICAGO, Feb. 17—Practically every company in Detroit and other Michigan points is obliged to make what shipments they do to Chicago on flat cars. Even though the present situation is severe, there promises to be little hope of betterment for a month, even if the plans of the railroads and the Interstate Commerce Commission move along the most ideal lines. Practically every available car will be used to rush foodstuffs to the East, and with such a large number of cars tied up on sidings in the East awaiting unloading, and a curtailed number of available locomotives on some roads, it does not auger well for the motor industry. Dealers in Chicago predict that unless the situation improves soon it will be necessary for every dealer who wishes to sell cars to go to the factory and drive them through to his city.

Michigan for the last few weeks has seen great bodies of cars sweep down through the State toward Chicago and the territory contiguous to Chicago. The Tennant-Oakland Co., handling the Oakland in the Chicago territory, drove 90 cars from the factory last week and 42 this week.

Chicago is getting not to exceed 60 per cent of its requirements in freight cars, but everything being furnished must go for handling foodstuffs and perishables. Cars are being cleared through the Chicago yards in 48 hours, according to H. C. Barlow, traffic manager for the Chicago Association of Commerce. Mr. Barlow made the statement that the railroads are now prepared to handle business more effectively than at any other time in several weeks, and if the weather keeps good it will only be a question of 30 days before the situation will be almost, if not quite, back to normal.

Minnesota Legislation Piles Up

ST. PAUL, Feb. 19—Much automobile legislation is before the Minnesota legislature at its bi-yearly session. Bills have been introduced to raise the registration fee to $5 a year; to deprive drivers convicted of intoxication while driving of license for 3 months; to register and preserve highway trails, to make it a felony to steal a car; to make possession of automobiles with altered factory numbers prima facie evidence of theft; a tax of 25 cents per horse power and 25 cents per 100 lb. on motor vehicles to be in lieu of other taxes on the vehicles.

A dimmer bill has been offered prohibiting use of lights which project more than 3 ft. above the surface of the road 75 ft. ahead of the car, exempting fire apparatus and publicly owned vehicles, and providing for examination of lights by county sheriffs and a fee of 25 cents for certificate of examination.

A bill has been introduced to repeal the horse thief bounty law. This may be amended so motor car theft conviction will carry a bounty. Another is planned to compel all vehicles to carry lights at night. A second will permit county commissioners to compel installation of safety signals at dangerous railroad crossings and a third to prohibit manufacture of sleighs other than those 56 in. wide at the runners.

Nationwide Contest for Packard Sales Forces

Lincoln Highway Sweepstakes Starts Feb. 22—Contestants in Four Divisions

DETROIT, Feb. 19—Every Packard dealer and organization in the United States and also in Toronto, Can., and Honolulu, is entered in a nation-wide sales contest which will be known as the Lincoln Highway Sweepstakes.

Each dealer is supplied with a Lincoln Highway map, and on this appear the names of the organizations in his division. These, as well as his individual salesman, are numbered and the map is divided off in 33-mile sections. As an organization or a salesman scores a sale, the number of the organization or salesman is moved along the highway the distance the sale represents in percentage of quota. San Francisco is the starting point and New York the finish, representing 100 per cent quota.

The sweepstakes will be started tomorrow, Washington's Birthday, with a celebration at the factory and in the various salesrooms.

The entire sales force is divided into four divisions. Each dealer competes for first place in his division, each sales manager in division A competes for master sales managership, each salesmanship in each division competes for master salesman's division in his division. Within every organization a local race is run at the same time for master salesman of the organization.

Inter-city Reliability July 17-18-19

NEW YORK, Feb. 19—July 17-18-19 are the dates chosen for the proposed inter-city team reliability run, which will start and finish in Buffalo. These dates were selected by the contest board of the American Automobile Association. Teams of from 5 to 10 cars each may be entered from not more than 10 cities. Definite assurances of support have been obtained from New York, Chicago, Indianapolis, Detroit and Buffalo; Philadelphia, Boston and Cleveland are considering. Entries must be made by May 1 and the makeup of the team announced by June 1.

Wonder-Mist on The Coast

SAN FRANCISCO, Feb. 19—The Bailey-Drake Co. has contracted to handle the sale of Wonder-Mist on the Pacific Coast. The company has offices in San Francisco, Los Angeles, Portland and Denver.

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Peoria's Seventh Show Upsets Former Records

Estimated Attendance 20,000—Forty-six Makes Shown—Distilleries the Big Local Industry

PEORIA, ILL., Feb. 19—Peoria's seventh annual show, which closed Saturday night after a 4-day run, was the most successful in point of attendance, sales and prospects ever developed in any show staged by the local dealers.

It is the consensus of opinion that the show marked the beginning of a year of unprecedented sales. Dealers do not base their opinions upon flimsy foundation for they point at the prosperity of Peoria and central Illinois.

Bank clearings for the year 1916 established a new record when they amounted to $205,262,531.85 compared with $161,593,412.99 in 1915. Figures for the month of January show a big increase over the same month a year ago and dealers base their predictions upon the continued increase in bank clearings, the tremendous demands for workingmen and the advanced wages they are receiving.

During the year 1915, 2,137 cars were registered in Peoria county and in 1916 there were 3,379 cars registered.

Peoria is known as the largest distillery city. In years past these distilleries have employed only a limited number of men and operated a limited number of hours, but for the past year and a half they have more than doubled the number of employed and have increased their wages.

These men are steadily accumulating sums of money and purchasing cars. Men employed in the Avery Mfg. Co., Holt Caterpillar Co., Herschels, Keystone Steel and Wire Co., and the numerous other plants have been granted increase in wages and worked double-time for the past year and a half. They, too, are purchasing cars.

Although the last government census showed Peoria to have a population of 66,100, the city authorities now place the population at 85,674. Peoria has been fortunate in attracting several large corporations during the past year which has added to her wealth and unemployed men are a scarce article, and have been for more than a year.

The Keystone Steel and Wire Co. has erected a $2,000,000 steel plant in Peoria which will soon be ready for operation and which will employ about a thousand men when in full operation.

Peoria dealers are looking forward to the best year they have ever enjoyed. Every contract signed by local agents shows an increase over the orders placed for 1916 and dealers declare they will dispose of every car contracted for and re-order more.

For some time dealers have had considerable trouble in getting cars to Peoria because of the freight congestion and for that reason they have been driving them from the factories. Each week large numbers of helpers leave for Chicago, Detroit, Indianapolis, Elkhart and other automobile manufacturing cities and drive cars in. And still dealers have been unable to supply the demand.

A glimpse at the valuation on real and personal property within the city limits will disclose that the vast increases that have been effected in them is one of the basic reasons why Peoria's wealth has been enormously increased.

During the year 1916 building permits issued represented investments of more than $4,000,000. This shows a decided increase over the previous year. The city also issued bonds amounting to $189,500 for improvements during the year.

Internal revenue collections for the year show that the Peoria distilleries paid into Uncle Sam's aching void almost a dollar a second. The collections for the year amounted to $31,031,513.14., an increase of nearly $5,000,000 more than in 1915.

During the year in round numbers 14,000,000 bushels of grain were consumed by the Peoria distilleries, only a part of which is made into whisky. Distilled products of all kinds amounted to 67,500,000 gallons. Most of the grain was made into alcohol and shipped abroad to the warring nations and used in the manufacture of powder and explosives.

Upwards of 20,000 people visited the show. People came from all parts of the state.

Forty-six different make cars were exhibited and others were shown at the Jefferson Hotel and showrooms throughout the business section of the city. More than a hundred cars were shown at the show together with thirty displays of automobile accessories.

Pennsylvania Would Bond Drivers

YORK, PA., Feb. 17—A bill has been prepared by Representative Sinclair which will require every owner or operator of a motor car or truck to file a $2,000 bond when he applies for a license. The bond would be used for the benefit of any person obtaining judgment for injury caused by the automobile and the highway commissioner, when notified of a finding, would certify the bond to the prothonotary of the county so that collection could be made upon proper order of court. The bond would remain in force until its whole amount was exhausted and could remain good in part in case a verdict did not amount to the face of it.

Show Profits Paid for Philadelphia Banquet

Quaker City Dealers Celebrate—Exhibitors to Get Big Refund on Space and Advertising

PHILADELPHIA, Feb. 19—The show committee of the Philadelphia Automobile Trade Association feted that organization at its fifth annual banquet last Saturday night on the Roof Garden of the Bellevue-Stratford Hotel.

In other years it was the members of the association who tendered the affair in recognition of the show committee's efforts. This year it was provided for out of the funds from the show.

The trade just closed the most successful year in its history. This was also shown in the tremendous success of the show held last month in the Commercial Museum. One hundred thousand saw the show during the 8 days it was held. About 60 per cent of the money taken in from the sale of space and gate receipts will be refunded to those who participated in the exhibition, in addition to a probable 85 per cent on advertising in the program.

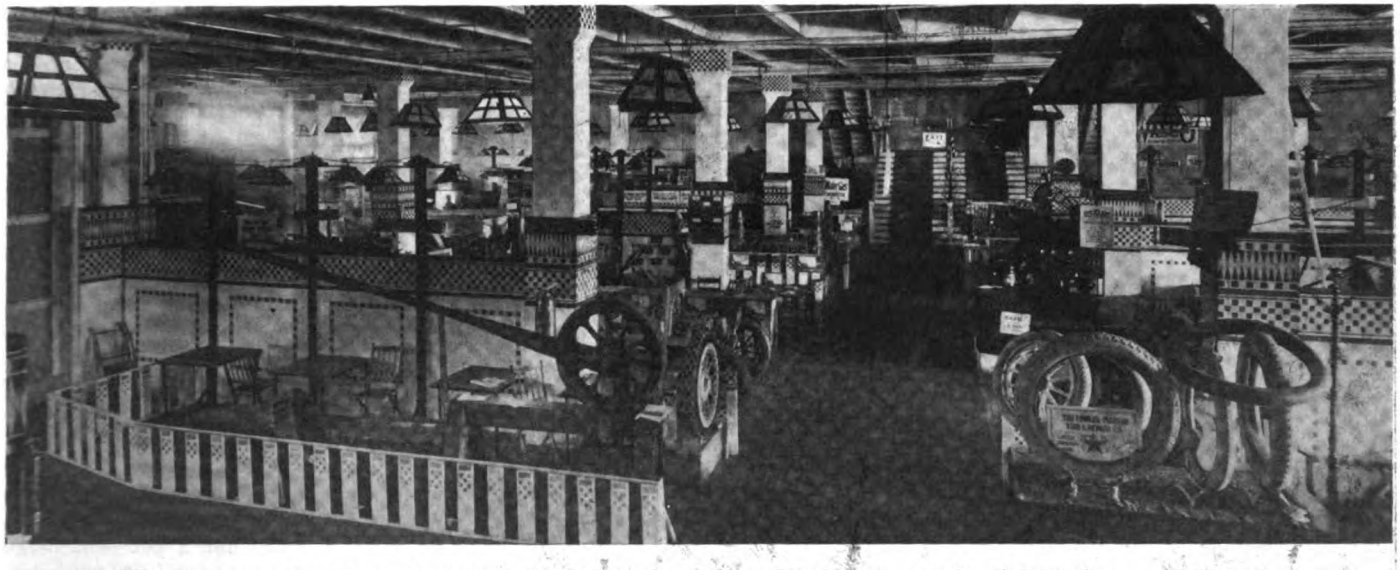
Among the guests were men who traveled many miles to attend the banquet and to be again among their former fellow-members. At the guests' table were: G. D. Bartlett, the association's attorney; Lee J. Eastman, Packard Motor Car Co.; F. W. Eveland, White Plains, N. Y.; E. J. Berlet, Philadelphia; P. S. Tyre, the show architect; J. E. Gomery, Gomery-Schwartz; J. H. Fassitt, Foss-Hughes Co.; E. J. Cattell, City Statistician; Louis Block, Ford Co., Philadelphia; Paul B. Huyette, Quaker City Motor Club; Dr. W. P. Wilson, president the Commercial Museums; William Berrien, Batavia Rubber Co.; George W. Hipple, Mitchel Motor Car Co., Racine, Wis.; E. B. Jackson, Willys-Overland Co., Toledo; Robert Hooper, president the Pennsylvania Motor Federation, and A. E. Maltby, the Winton Co.

Bloomington Limits Free Service

BLOOMINGTON, ILL., Feb. 19—Dealers and garagemen have agreed to limit free service strictly to 90 days. The action has been taken following discussion by the Bloomington Automobile Trade Association which some time ago appointed a committee to investigate the situation. It has been decided that the free service will apply only to repairs and adjustments due to defective workmanship or material.

By means of co-operative agreements such as this the association aims to eliminate cut-throat methods in competition.

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The accessory show is in the basement. At the back of each exhibit is a 6 ft. division fence and there is a lower fence between the exhibits so that each exhibit is separate and distinct

Kansas City Needs

100,000 Motor Cars

AND HER PEOPLE HAVE THE MONEY TO PAY FOR THEM

FIGURING backward and forward, round the corner and down through the skylight, it looks as if Kansas City will have to provide more than 100,000 motor cars to its most restricted district, Kansas, Oklahoma and western Missouri. Kansas City will need more cars than this, for she has to supply certain makes to many other States as well.

She will need to provide, apparently, about all the trucks she can get—but this demand is not likely to carry the trade off its feet this year. Next year, and after that, perhaps, radically larger provision must be made, unless the farmer prefers to haul his crops to market with tractors.

Catching up the subject from one of its loose ends—which pulls out a very significant fact—it might be stated that nearly every railroad yard in the Kansas City district is congested, delaying shipments to merchants of the small towns who have ordered goods, and who want these goods because they can sell them.

The People Have the Money

The people in the territory have money, and want to spend some of it right away, out of season; they will doubtless spend some of it for automobiles, and the merchants who get theirs will probably want automobiles, and perhaps trucks also. Kansas City has a special bureau in its traffic department devoted to helping jobbers get out their merchandise shipments in less than carload lots; these cars are seriously delayed by the tieups along the lines.

The congestion of terminals and of the switching facilities in the smaller towns cannot be mitigated except by more rails. National steps toward relieving conditions in the East and returning cars to the West are expected to provide better operating procedure also as well as more cars.

Good Weather Helps Deliveries

But the automobile industry in the territory immediately around Kansas City will not wait for that—all winter cars have been driven 50 to 100 miles by dealers to fill orders because the weather has been fairly open and roads good.

Good roads this spring will expedite this method of delivery and distribution. Railroads will probably do as the Union Pacific did to relieve local congestion—put on an embargo for a week or so over the entire line and clean up. The Union Pacific has been particularly punctilious about returning cars but is said to have had, at a recent date, only 60 per cent of its car equipment on its own lines suffering for its own virtue.

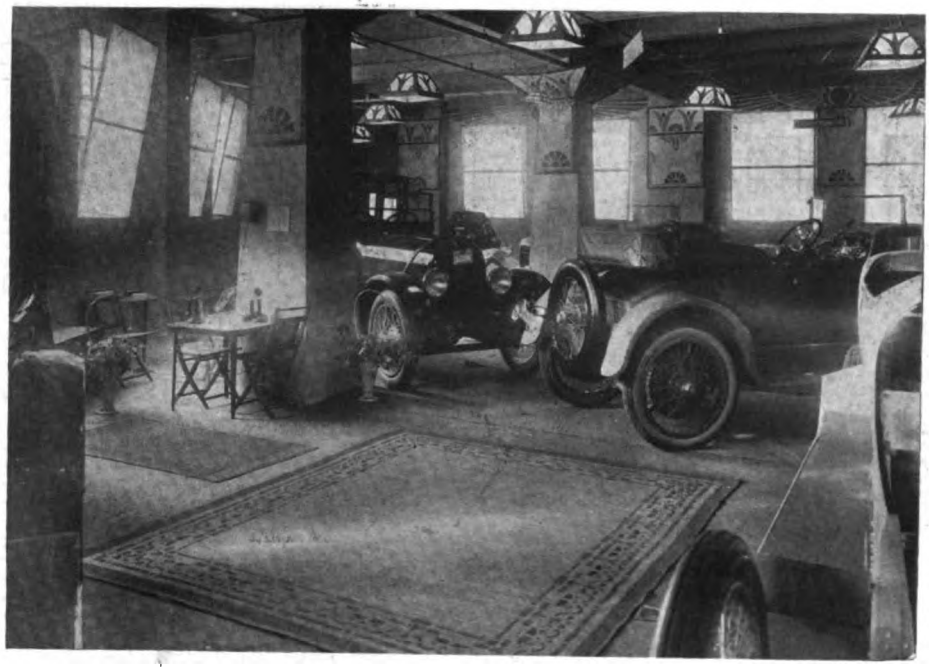
There's a Big Oil Boom

Here's another thread that brings forth a subject scarcely less in the public mind than freight congestion. That is the oil boom of Kansas and Oklahoma. It's worth a little time and space. Oklahoma production increased 10 per cent last year, although many of the former big producers had fallen off sharply, and it is admitted that the big production of the newly developed fields has not begun. Kansas production increased 300 per cent—and again it must be said that the chief activities so far have been trying to find the big pools.

The oil business has been pouring money into Tulsa, Okla., and has made the town famous for wealth; now Wichita, Kan., is becoming another Tulsa.

The chief immediate effect of the activity in oil is the withdrawal of money from stocks and safe deposit vaults for

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The Marmon exhibit contained plenty of room, and this picture shows the excellent effect that is obtainable with an ordinary inexpensive grass rug

circulation in Kansas City, Wichita, Topeka and the oil fields.

Nobody has estimated how much money has been invested in oil stocks by persons who have or have not automobiles; a vast sum has come in small amounts of $20 to $100, much more in sums from $500 to $1,000. These subscriptions have financed many concerns that are actually leasing and drilling—incidentally financing the promoters and the salesmen.

The money gives extra resources, really velvet, to farmers who lease their land; it buys new or second-hand equipment, and pays for transportation of materials and men, much of the latter by motors. The large amounts put into oil development by more wealthy men, bankers and investors, has merely been withdrawn from time deposit, from securities or from other investments, and thus put into circulation.

The most interesting movement of the money is through the hands of the farmers and owners of land. In many sections of Kansas and Oklahoma there are districts tolerably well known as oil districts, but they have been developed largely. Now, companies are drilling on the edges of these established districts, and 25 and 50 miles outside, and frequently finding oil.

A Fever of Oil Leasing

The result of operations in these outlying districts is a fever of leasing, which is immensely expanding the fields of operation. Leases sell from a dollar an acre for 6 months' lease up to $100 an acre for 5 years, and even fancier figures—with an eighth of the revenue from the oil. Perhaps the speculators and brokers in leases get much of this lease money, and they are riding in automobiles. The farmers get enough to make spending easy.

Tulsa bank clearings gained 148.3 per cent in 1916; the total for the year was $190,168,701, while January clearings were $25,832,553.05, indicating another possible gain for the year of more than 100 per cent.

Wichita clearings gained 29.6 per cent in 1916, and were $254,066,933. January, 1917, clearings gained 50 per cent over the clearings of January, 1916.

It is obvious that the inrush of oil developers is causing a tremendous impetus to building and other business of the oil centers.

Metal Prices Going Up

Manufacturers of automobiles, and repairmen, have alike noted the increase in the prices of metals and minerals. Hence, the obvious connection of the mining production of Missouri-Kansas-Oklahoma, which increased 34 per cent last year.

The price of zinc and lead, and the movement slumped in the summer of 1916, yet the total for the year, in value and volume, was a record, with the present operations very largely beyond those of a year ago. Higher prices are further encouraging development. The year's production was valued at about $10,000,000 above last year's.

Joplin is the center of that field, dominating it; Joplin's bank clearings gained 53.1 per cent in 1916, and were $76,075,155.

It is clear that Joplin will continue to improve as a market for motor cars and trucks; it is said to be an especially good field for electric vehicles. Jasper County, in which Joplin is situated, had 4720 registered in 1916, twice as many as Greene County, in which is Springfield, a larger city than Joplin.

Crops 20 Per Cent More Valuable

The value of farm crops in Missouri, Kansas and Oklahoma was about 20 per cent greater in 1916 than in 1915—Missouri showing a slight gain of less than 10 per cent, Kansas 10 per cent and Oklahoma 33 per cent. The increase in money value was about $127,000,000. Western Missouri did not do well in corn, hasn't for two years, and luck is about to strike her with a good crop.

Oklahoma and Kansas conditions for wheat are said to be at this time about 75 per cent of satisfactory. Kansas has an acreage more than 2 per cent larger than last year, or about 8,000,000 acres, against which must be set off the possible plowing up of about 2,000,000 acres, because of late planting and adverse winter conditions, and which is partly provided for in the reduced condition mentioned.

All three States, Kansas, Missouri and Oklahoma, fell down on corn last year, their total production being little more than half of that of 1915, the price reaching above a dollar a bushel at the market.

The year 1916 was second only to 1915 in hay receipts at Kansas City, but prices rose towards the last of the year to record levels, alfalfa selling up to nearly $20 a ton. Prairie hay fell off in price. The car shortage restricted the movement. The outlook for the 1917 crop is good, and the price of live stock, which is high, will keep up the level of hay prices.

Live Stock at High Prices

The record runs of live stock to market in 1916, at the high prices, suggested that the movement would slow up this year, but cattle have been coming in unusual number. The price, against the large runs, has constantly risen. Every beef animal that is marketed from a farm in this district brings $15 to $35 per hundred pounds more than it would in February, 1916; every hog is worth from $9 to $12 more; every sheep will bring $2 to $4 in excess of the market quotations of last year.

This increase in price will more than offset the loss in number of hogs on the farms, which is 10 per cent in Kansas; 5 per cent in Missouri, and 8 per cent in Oklahoma. But there are more cattle in Kansas than last year by nearly 300,000, and nearly 50,000 more sheep—a very marked increase in possible revenue there alone.

Horses and mules have failed to make gains in proportion to other resources of the Western farmers. With a marketing of 126,000 in Kansas City, against

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102,000 the previous year, and a considerable demand for export, prices gained only $4. There are 7232 fewer horses in Kansas than a year ago, but mules have gained about 20,000.

The transition is rather easy from the puzzling failure of horses and mules to get in line with price advances, to comment on the number of automobiles in the three States. Kansas had 59,486 registrations in the fiscal year 1915, and 89,223 in 1916, ending June 30. Since July 1, 1916, about 115,000 cars have been registered, and if the usual proportion, considering the ordinary percentage of gain, holds, there will be about 25,000 additional registrations by June 30 this year, making a total for the fiscal year 1917 of about 140,000, against the 89,223 of 1916, or slightly over 50,000 gain for 12 months.

Big Gain in Population

Kansas gained 42,918 in population in 1916, the automobiles gaining, at present, on the people. However, it is not believed that this relation will continue.

Specific comparisons of various items in certain centers may be interesting. Wichita, for instance, lost in population in 1916, while Sedgwick County, in which Wichita is situated, gained a few hundred in people, 1,470 in automobiles. Wichita gained also about 100 per cent in bank clearings for the year, clearings a recent week being 50 per cent greater than the same week in 1916.

Butler County gained 20 per cent in population, 80 per cent in automobiles; Augusta, a village in Butler county that is the center of new oil activities, gainst 159 per cent in population. El Dorado, also in Butler county, gained about 40 per cent. Butler county adjoins Sedgwick, which may account for some of the loss there is population.

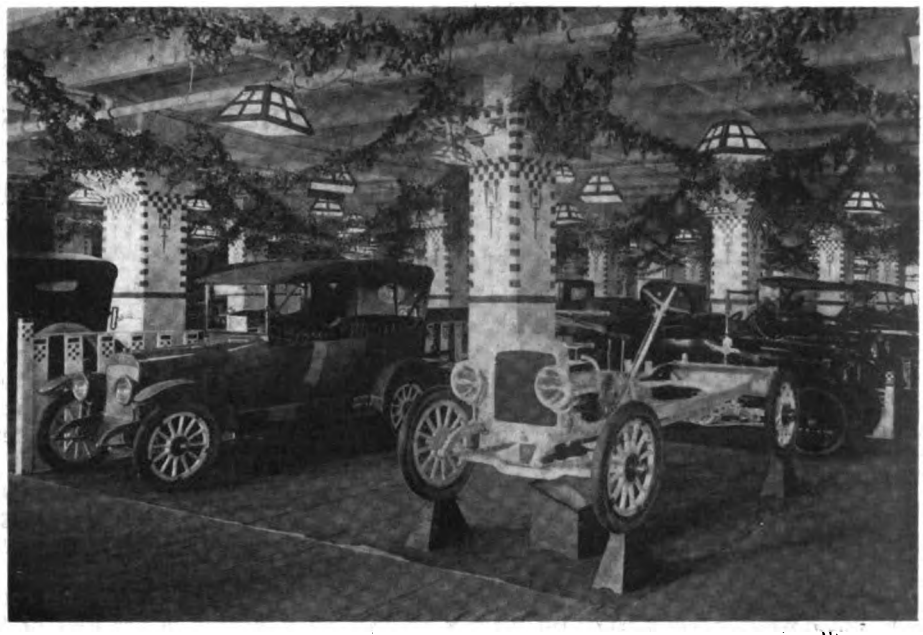
Here are a few of the counties of Kansas, with population figures, automobile registration and wheat acreage:

County	Wheat Acreage	Population	Automobiles
Barton	291,021	18,377	1,569
Ellis	230,992	13,745	597
Ford	267,168	13,673	1,086
Pawnee	273,626	9,492	1,114
Reno	266,009	42,458	2,981
Sedgwick	161,281	72,694	4,758
Shawnee	18,021	64,842	2,650
Wyandotte	8,342	113,130	1,942

Reno county has Hutchinson, the fifth largest city of the State; Sedgwick has Wichita, the second largest, and Wyandotte has Kansas City, Kan., the largest. Shawnee county has Topeka, the capital and third largest city.

Farms and Oil in Kansas

As in Kansas, agriculture and oil have influenced the purchases of motor cars—first, agriculture, in the western counties, Garfield county, in the western edge of the gas and oil field, has a population of 23,000, and 1899 automobiles; it has one of the largest towns, Enid City. Kay, with 26,000 people, has about 1700 cars. Tulsa county, containing Tulsa, has about 4000 cars—but neither car nor human population figures last long there.



The fourth floor is styled the Green Room and the decorations have been worked out correspondingly

The State has about 53,000 cars, the large majority of which are of the cheaper class, but with the higher priced gaining rapidly. The State has gained nearly 120 per cent in automobiles in the past year, since the eastern half began to buy. Orders are farther behind in Oklahoma than in either of the other States.

Missouri offers an entirely different situation than the other States. Outside of Joplin, agriculture and general business are the chief industries. And there reference is made back to that congestion of terminals, and car shortage, that have resulted from the pressure of merchants to get goods.

St. Joseph, Mo., in Buchanan county, is one of the best instances of the results. Buchanan county has more than 3000 automobiles, with more than 100,000 population, is developing its roads rapidly, getting cars by driving from Kansas City and St. Joseph, the chief city, of about 80,000, is busier than it has been for years, its jobbing houses extending their trade into the whole southwest.

Some Big Little Towns

Carroll county, just northwest of the center of the State, with a population of about 25,000, has Carrollton, with 4000, and 964 automobiles; its two banks have deposits of about half a million each, Newton county, in the southwest corner, has about 30,000 people, with Neosho, a live town of 5000. Newton county has about 700 motor cars. Neosho's three banks have deposits of more than $600,000. Pettis county, in the north-and-south center of the western half of Missouri, with a population of about 35,000, has 1200 motor cars. Pettis has Sedalia, where the State fair is held; it has 25,000 population, and three banks with total deposits around half a million. Clay county, across the river from Kansas City, with about 25,000 people, has less than 700 motor cars. Platte, north of Clay and adjoining Buchanan, with less than 20,000 people, has about 600 motor cars.

When This Opens Up

Various industries are studying the problem of Western Missouri, in comparison with Kansas, as a business producer—and branch managers of these industrie are wondering when the district east, south and north of Kansas City will produce trade in comparison with its population and resources. When it does "open up" there will be a rush of business that will take many of these industries off their feet. Perhaps the comment of a manager of an agency in another line than automobiles will be illuminating in this connection:

"I have studied the question of developing Western Missouri very carefully. And I have decided that it is not worth while, right now, to do much except in a few of the cities. The country, and the towns of 1000 to 5000, are so far behind similar districts in other States, that promotion work is unprofitable.

"Why, in agricultural districts of Illinois, for instance, comparable in most ways with Western Missouri, there are automobiles galore—I know of towns of 2000 with 400 machines, and trucks, too. In Missouri, such towns have only half a dozen automobiles.

"It is the hardest work in the world to sell in these towns—so hard that it is not worth while trying."

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Motor Car Dealer Especially Fitted To Handle Farm Tractor Business

Quick Service, Like That Rendered on Cars Essential —Tractors Attracting Dealers Now

KANSAS CITY, Feb. 17—The last year has seen the farm tractor industry come closer to the motor car dealer, much as the tractor makers may have desired otherwise. More than ever before do the tractor makers realize that quick service, such as has to be given with motor cars and trucks, is essential to the tractor industry. Professor Thomson, writing in the *Implement and Tractor Trade Journal*, emphasizes this point in the following words:

"The tractor manufacturers to-day face the same problem that the motor car manufacturers faced a few years ago. And the solution of the tractor service problem will work out along similar lines, that of quick service given by dealers on the ground."

This sums up the tractor situation so far as service is concerned, and leads the way to the only natural deduction, namely, that there is nobody in the country better equipped to give that quick service on the ground than the motor car dealer and there is nobody better acquainted with a ground work in the gasoline engine than this same dealer. The dealer in motor cars is the logical person to sell farm tractors.

Discounts Are Higher

The farm tractor business appeals a little stronger to the motor car dealer than a year ago because discounts to dealers are higher and the cash-payment business has made much headway in the last year. For 30 years the implement business has been shot to pieces by long-term credits—pay in two or three years.

The implement men apparently never thought that the farmer could pay cash for his machinery. He had always bought for credit and always must. The last 5 or 6 years have proved that the farmer can pay cash for motor cars; at least, he can finance the deal through his local banker. If the farmer has been able to pay cash for 750,000 or perhaps 1,000,000 motor cars which he has bought in the last 5 years, there is no reason why he cannot pay cash for his farm tractor.

The tractor manufacturers are seeing the light in this direction. Up to the present they had practically decided to follow in the footsteps of the farm machinery maker and the implement dealer, but a change is coming. They have seen the millions of motor cars sold, for cash or on definite time basis, and now they believe that what the motor car maker and dealers can do the tractor makers and dealers can also do.

One of the largest tractor makers told how one of their number, a year ago, had to resort to a committee of bankers to manage the business, largely due to long credits. In the last year this company has put nearly 75 per cent of its business on a cash basis and has shown a profit. If this can be done in a year, what may be expected in the next year or so? The farm tractor business is bound to be placed on a better basis. The farmer has all kinds of money and there is no time better than the present when he must get on the cash-buying platform.

Attention, Big Dealers!

The tractor business is now attaining large enough proportions to warrant big dealers giving it attention. Last year there were between 35,000 and 45,000 farm tractors manufactured. This year we hope to see 70,000 built. The tractor makers announce that they will build 100,000 this year, but they are a little too optimistic.

Of these 70,000 tractors to be built, the majority will be of the light type, perhaps with a rating of 12-25 or something in that zone. Statistics show that of the 35,000 to 45,000 built last year, 85 per cent fell in the light weight class, that only 12 per cent were in the medium class and but 5 per cent in the heavy weight division.

As in the motor car field, so in the tractor field, the light weight job will be the popular one. The light weight job will handle three or four plows. It calls for a drawbar pull of 2250 lb. to pull four 14-in. plows; in other words, each 14-in. plow calls for about 530 lb. drawbar pull.

To-day there are about 140 different makes of tractors, not over a dozen of which are big producers. It is stated that the largest tractor maker produced nearly 18,000 last year, that two others built 3000 each, three others built 2000 each and there were a dozen others that built between 500 and 1000 each.

There are several makers that built only 50 machines last year, and a few that have just got their first machine on the market. As in all new industries there is bound to be a great amount of promotion work and so new tractor concerns are being developed in many single-cylinder machine shops. The dealer must watch out for such. Some new companies are turning out good designs, in fact, more modern than a few of the old-line concerns who were first in the field.

Tractors have improved astonishingly in the past year, in fact, it appears that some definite line of development can now be tracted. To-day the corner has been turned, and while the show of this week has not proved the fact, it is generally conceded that tractor design has started forward on a more definite line.

Four-Cylinder Will Dominate

The general consensus of opinion is that the four-cylinder vertical motor will dominate the field with a few six-cylinder motors, perhaps, for exceptionally large machines. Some large production concerns are marketing the horizontal two-cylinder design.

The four-wheel tractor gives evidence of also dominating the situation but this path of development is not nearly so clearly defined as that of the vertical motor. There is more or less of an argument between the four-wheel designs and those using three wheels with a single wheel for steering in front. Both use practically the same arrangement of vertical motor, clutch and power transmission the two driving wheels in rear. Those using the single wheel in front argue that they can turn in less space, which is very essential in farming; the four-wheel exponents argue that there is not sufficient weight on the single front wheel for correct steering at all times, and further that the three-wheel design is not so well suited for road work as the four-wheel jobs.

One of the biggest changes that came over the tractor industry last year was the more general use of kerosene and also the filtering of air entering the carbureter.

Of just as great importance as this has been the more general use of a fuel a little heavier than gasoline. The farmers call it kerosene but it is generally a fifty-fifty mixture of gasoline and kerosene. It is hard sledding to sell a tractor to-day unless it will use kerosene. A year ago there was no such demand. Then gasoline was relatively cheap but the increase in prices has quite changed the farmer's attitude. Now he demands kerosene whether he uses it or not. The tractor makers and the carbureter makers have risen to the occasion and provided devices that will handle kerosene but even this is no assurance that such is being used. The opinion is very general that very few farmers are using pure kerosene but that most of them are mixing it with gasoline.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

J. P. Scearce, formerly manager of the Seattle branch of the Metz Co., has recently been appointed district sales manager in charge of California, Oregon, Washington, Idaho, Montana, British Columbia and Alaska. He will continue to make his headquarters in Seattle. **William Bradshaw** will succeed Scearce as manager of the Seattle branch.

George Morris has become vice-president and general manager of Kaufmann & Morris, Inc., New York Premier dealers.

Harry A. Martin has been made wholesale manager for the Davis Motor Car Co., New York. He will cover New York, New Jersey and Connecticut.

J. M. Schwerin has been made sales manager of the Ben Hur (New York) Motor Car Co. He was formerly connected with the Eastern distributers of Abbott-Detroit cars.

E. W. Niehoff, formerly with Waterhouse-Sands Co., is now with Dodge Brothers, in charge of the commercial sales.

Nelson Gotchell, formerly with the Chandler Motor Car Co., is now sales manager of the Northwest for the Smith Motor Truck Corp.

J. E. Baum has resigned as president of the Supplee-Biddle Hardware Co., Philadelphia, and will devote his time in the future to the affairs of the Empire Tire Co., Trenton, of which he was recently elected president.

Harry Glazier has been appointed branch manager for the recently established factory branch of the Wichita Motor Truck Co., Los Angeles.

R. O. Monroe has been made manager of the Middle West sales for the Monroe Motor Co., Pontiac, with offices in South Bend, Ind.

Ralph R. Schrenkeisen has been appointed manager of the sales department of the Randall Motors Corp., New York, Eastern distributer of the Grant Six.

R. G. Nelson will become assistant sales manager of the McGraw Tire & Rubber Co. March 1. He was formerly New York district manager. His headquarters will be in East Palestine. **W. V. Logan**, St. Louis district manager, will take Nelson's place. **C. E. Pumphrey**, Atlanta district manager, will be moved to St. Louis and **T. J. Harris**, special representative, will take charge of the Atlanta office.

Gerald Fitzgerald is now a member of the sales department of the Nordyke & Marmon Co., Indianapolis. He was formerly manager of the Minneapolis branch of the Remy Electric Co., and lately has been engaged in motor truck selling.

H. H. Brooks has been appointed assistant sales manager of the Nordyke & Marmon Co., Indianapolis.

Walter M. Bieling has been appointed central states sales manager of the Nordyke & Marmon Co., Indianapolis. He will make his headquarters at Indianapolis.

J. A. White, formerly manager of the Boston and Chicago branch offices of the U. S. Light & Heat Corp., Niagara Falls, N. Y., has been appointed manager of sales of the battery department, with offices in this city. **W. W. Halsey** has been appointed manager of the New York sales office.

F. E. Dayton has become general sales manager and a director of the Ajax Rubber Co. This promotion comes to Dayton following the retirement of J. C. Matlack, whose resignation was accepted last week at the annual meeting of the company.

W. A. Bryan, superintendent of the motor truck plant of the International Harvester factory at Akron, Ohio, has joined the factory executive force of the Firestone Tire & Rubber Co.

H. T. Ames of the general sales department of the Saxton Castor Motor Oil Co., Chicago, will take charge of the Detroit office of that company as soon as opened.

W. H. Barcus has been made manager of the new Cleveland district of the Fisk Rubber Co., which embraces the company's branches at Cleveland, Toledo, Lima, Columbus, Youngstown, Dayton, Cincinnati, and Pittsburgh. He has been in charge of the Fisk branch in Cleveland for several years.

Robert B. Pierce, formerly chief adjuster for the Kelly-Springfield Tire Co., Akron, O., has been appointed manager of the Cleveland branch of the company.

R. S. Allen has joined the organization of the Gould Storage Battery Co. and will have charge of the automobile manufacturers' business, and will be located in Detroit.

William P. Woodside has been appointed superintendent of plant 4 of the Studebaker Corp. Woodside was formerly connected with the Crucible Steel Co.

P. E. Winslow, who for the past three years has been in the executive department of the Hupp Motor Car Corp., has resigned his position.

C. E. ("Coxie") Cook has been appointed director of 120 branches of the B. F. Goodrich Co. Cook was formerly Pacific Coast manager of the Goodrich Co.

A. G. Frost has joined the sales staff of the Chalmers Motor Co. and will do special sales work under the direction of E. C. Morse, vice-president and general manager. Frost is one of the veterans of the New York automobile district, and was associated with Morse when the latter was connected with the E. R. Thomas Motor Car Co.

Business Doubled for Truck Company

DETROIT, Feb. 19—The Detroit-Wyandotte Motor Truck Co. held its annual meeting last week and showed that the volume of business handled by the company in 1916 was approximately double that of the year preceding. The financial statement shows net surplus of $80,438.99 at the end of the year. Directors were elected as follows: George A. Horner, Milo O. Crawford, Frank H. Hester, D. Rasch, John J. Marx. The directors re-elected the following officers: president and general manager, George A. Horner; vice-president, D. Rasch; secretary and treasurer, Milo O. Crawford.

Paige Pays $150,000 for Land

DETROIT, Feb. 19—The factory site purchased by the Paige-Detroit Motor Car Company, as announced in a recent issue of MOTOR WORLD, comprises 31 acres of land on the outskirts of Detroit and cost that company $150,000. President Jewett of the Paige Co. states that the company purchased the property because the present plant is operating at full capacity and will soon have to expand. Paige is planning on a production of 21,000 cars for 1917.

Redden Truck Plans 20 Branch Assembly Plants

Will Locate Main Factory in Joliet, Ill., Jackson, Mich., or Chicago —$4,000,000 Capital

NEW YORK, Feb. 17—Quantity production, backed by a $4,000,000 capital, is the basis of the big merchandising plan of the Redden Truck Co., which has just completed its organization for the manufacture of the Redden-Truck-Maker.

Twenty branch assembly plants in twenty of the largest cities in the country are part of the manufacturing and merchandising plan. The main factory will be either at Joliet, Ill.; Jackson, Mich., or Chicago, where the people interested already have large manufacturing interests. Subsidiary plants will be installed and operated after the plan of the Ford Motor Co.

Prominent in the organization of the Redden company are the following: Horace DeLisser of the Ajax Rubber Co.; H. W. Cowan, capitalist and former associate of F. W. Woolworth; C. A. Bickett, president of the Chicago Bearing Metal Co.; L. B. Patterson, Chicago banker, and W. K. Pritchitt of the New York banking house, Pritchitt & Co.

A coterie of Chicago and local banking and manufacturing interests have arranged to refinance the company and place it in a position to manufacture the attachments complete in plants that will be allied with the Redden company. This will enable the company to make the job complete from the rolling of the channel steel for the frame to the building of its own tires.

Nebraska Will Organize

OMAHA, Feb. 19—The organization convention of the Nebraska Automobile Trade Association will be held here Wednesday, March 28. Preliminary plans have been worked out by J. C. Thorpe, general director of the National Automobile Trade Association, working with the Omaha Automobile Dealers Association.

Following are the subjects outlined for discussion: Co-operation, Efficiency and Service; Significance of Retail Trade Organizations; Retail Trade Organization and the Manufacturer; Review of the Lien Law Legislation; Retail Automobile Credits and Banking; The Automobile Business, Its Problems and Their Solution.

A complimentary dinner will be tendered the jobbing interests, who it is expected will attend the convention. It is hoped that there will be a large attendance of dealers from all over the State of Nebraska.

Salesmanship Congress in Detroit

DETROIT, Feb. 17—The 1917 annual session of the World's Salesmanship Congress will be held in Detroit. The date has not yet been definitely decided.

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Starr Leaves Overland Branch in Los Angeles

Becomes Vice-President of J. W. Leavitt & Co.—Latter Concern Developing Big Expansion

LOS ANGELES, CAL., Feb. 17—L. V. Starr, manager of the Overland branch here has resigned after 6 years' connection with the company. O. B. Henderson has been named as acting manager.

Starr joins J. W. Leavitt & Co., former Overland distributers in California, whose interests were purchased by the Willys-Overland Co. for $1,000,000, as vice-president and one of the directors. The J. W. Leavitt company intends to become one of the largest concerns on the coast. Already, controlling interest has been acquired in J. W. Baldwin Co., this city, distributer Mitchell and Saxon, and Dubroy Motor Co., northern California distributers of the same lines.

In addition, the Ryus Motor Co., Chevrolet distributer in southern California has been bought out entirely. Distribution of the Premier in northern California also has been bought out entirely. Leavitt and company have been announced as California distributers for Harroun and Columbia cars, but there will be subsequent developments in this connection.

Starr will be in charge of affairs in the southern half of the state, and A. D. Plughoff, another vice-president and director will be in charge in the north. It may be expected that eventually Leavitt and company will be sole distributers for the Chevrolet factory at Oakland, Cal.

Van Dorn & Dutton Moves In

CLEVELAND, Feb. 17—The Van Dorn & Dutton Co. has moved into its new plant at the east end of the city. The main factory building is in two sections, one section two stories high, 50 x 250, and the other one story, 80 x 250. At the rear is a large sub-story room used for storage. Another building, 60 x 75, is used for hardening and heat treatment. The plant was designed for efficiency and all products are routed through from one end to the other.

First Doble Distributers

DETROIT, Feb. 19—The Pacific Kissel Kar Co., San Francisco, will sell the Doble steam car on the Pacific coast, and the E. C. Thompson Co., Minneapolis, will handle the new steam car in the Central Northwest. The territory allotted to the Pacific Kissel Co. includes California, Oregon, Washington, Nevada, Arizona, and Iowa. This company has branches in seven cities, 775 sub-dealers, and has transacted a business of $5,000,000 in 1916. The Thompson Co. will have Minnesota, half of Wisconsin, North and South Dakota, and all Montana east of the Rocky Mountains. Thompson was formerly at the head of the Chalmers Northwest Co. and now owns the Hess-Thompson Co. which handles the Chandler car.

New Colorado Harroun Distributer

DENVER, Feb. 17—T. R. Hough and A. K. McRae have formed the Hough, McRae Motor Co., and will distribute the Harroun car in Colorado, southern Wyoming, northern New Mexico and the northwest corner of Nebraska. Hough was formerly assistant manager in the Denver-Ford assembling plant and McRae has been operating the Arkansas Valley Auto Co., Ford dealer in Pueblo.

Two New Branches for Hess-Bright

PHILADELPHIA, Feb. 17—The Hess-Bright Mfg. Co. has opened two new branch offices, one for the Eastern States at 1974 Broadway, New York, and one for the Central States at 1036 Guardian Building, Cleveland. H. E. Brunner is in charge of the New York office and R. E. Clingan is in charge of the Cleveland office.

Apperson Completes New Plant

KOKOMO, IND., Feb. 20—The Apperson Bros. Automobile Co. has completed the construction of its new factory, new equipment has been installed and an entire new plant now si in operation. The old buildings will be utilized, but practically all of the manufacturing will be done in the buildings of the new group.

Motor Car Security Quotations

	Feb. 17 Bid	Asked
*Ajax Rubber Co.	69	70½
*J. I. Case T. M. Co., pfd.	82	85
Chalmers Motor Co., com.	20	30
Chalmers Motor Co., pfd.	..	..
*Chandler Motor Car Co.	97¾	98¾
Chevrolet Motor Co.	95	102
Fisher Body Corp., com.	35	40
Fisher Body Corp., pfd.	90	95
Fisk Rubber Co., com.	60	80
Fisk Rubber Co., 1st pfd.	101	105
Fisk Rubber Co., 2nd pfd.	95	102
Firestone Tire & Rubber Co., com.	134½	137
Firestone Tire & Rubber Co., pfd.	107	108
*General Motors Co., com.	104⅜	105½
*General Motors Co., pfd.	87⅞	88¾
*B. F. Goodrich Co., com.	56½	57½
*B. F. Goodrich Co., pfd.	109	110
Goodyear Tire & Rubber Co., com.	254	259
Goodyear Tire & Rubber Co., pfd.	106	107¾
Grant Motor Car Corp.	6	8
Hupp Motor Car Corp., com.	3½	4½
Hupp Motor Car Corp., pfd.	..	..
International Motor Co., com.	14	18
International Motor Co., 1st pfd.	..	70
International Motor Co., 2nd pfd.	..	30
*Kelly-Springfield Tire Co., com.	53	55
*Kelly-Springfield Tire Co., 1st pfd.	90	95
*Lee Rubber & Tire Corp.	21¼	22¼
*Maxwell Motor Co., Inc., com.	54⅜	55½
*Maxwell Motor Co., Inc., 1st pfd.	67¼	68
*Maxwell Motor Co., Inc., 2nd pfd.	34½	35
Miller Rubber Co., com.	243	248
Miller Rubber Co., pfd.	105	107
Packard Motor Car Co., com.	..	150
Packard Motor Car Co., pfd.	..	102
Paige-Detroit Motor Car Co.	38½	39⅛
Peerless Truck & Motor Corp.	11	19
Portage Rubber Co., com.	162	165½
Portage Rubber Co., pfd.	..	..
†Reo Motor Car Co.	36½	37¼
*Saxon Motor Car Corp.	52	54
Springfield Body Corp., com.	70	80
Springfield Body Corp., pfd.	110	120
Standard Motor Construction Co.	6	7
*Stewart-Warner Speed. Corp.	84½	85¼
*Studebaker Corp., com.	103½	104
†Studebaker Corp., pfd.	104	108½
Swinehart Tire & Rubber Co.	80	85¼
United Motors Corp.	39	40
*U. S. Rubber Co., com.	53¾	54
*U. S. Rubber Co., pfd.	106½	108½
*White Motor Co.	47	50
*Willys-Overland Co., com.	32¾	33
*Willys-Overland Co., pfd.	97½	98½

*At close Feb. 17. Listed N. Y. Stock Exchange.
†Par value $10; others $100.

Corporation to Finance Purchase of Motor Cars

Commonwealth Finance Corp. Formed to Back Buying of Trucks and Cars on Time

NEW YORK, Feb. 19—The financing of the purchase of commercial vehicles and passenger cars upon the time-payment plan is included in the scope of the Commonwealth Finance Corp., incorporated under the laws of South Dakota with a capital of $10,000,000 7 per cent cumulative preferred and $7,500,000 common. The fiscal agent is Sargent & Co., Minneapolis. An office will be opened in the Trinity Building, this city. The company will purchase from dealers deferred-payment paper on cars which they have sold. Such paper, carrying the endorsement of the dealers together with that of the company, can be resold.

Purchasers of automobiles will also be financed, the security being a mortgage upon the car itself or a contract whereby the title to the car remains in the name of the Commonwealth corporation until the last payment is made, together with an insurance policy covering fire and theft.

Peerless Prices Higher Feb. 28

CLEVELAND, Feb. 19—The Peerless Motor Car Co. will raise its prices Feb. 28. On that date the touring car and roadster selling at $1,890 will be $1,980; the Sedan, now $2,750, will be $2,840; and the limousine will rise in price from $3,260 to $3,350. The sporting roadster and the coupe will remain at their present prices.

Frost Gear Co. Holds Meeting

JACKSON, MICH., Feb. 19—Officers and directors for the ensuing year were elected by the Frost Gear Co. at the annual meeting held Tuesday. The officers are: President, E. E. Frost; vice-president, M. C. Townley; secretary, Robert Smith; treasurer, A. S. Glasgow. The board of directors includes the officers and Thomas Woodfield, E. J. Weeks, and James Heaslet, the latter of Detroit. Mr. Heaslet also holds the office of vice-president in the company.

Southern Chevrolet Plant Starts in March

DETROIT, Feb. 19—The plant of the Chevrolet Motor Co. at Fort Worth, Tex., will commence operations in March. The Chevrolet Co. expects to produce a total of 540 cars a day by that time, its daily output now being 400 cars. The schedule now outlined calls for 600 cars a day by July 1st.

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Republic Truck May Buy Torbensen Axle Stock

Former Company Aims to Control Latter's Internal Gear Patents —Reorganization Plan

ALMA, MICH., Feb. 19—The Republic Truck Co. is arranging a plan to obtain control of the Torbensen Axle Co., Cleveland. The plan will allow the Torbensen company to continue the manufacture of axles for practically any concern that wants to purchase them. The plan calls for an increase of capital stock in the Republic company whereby 15,000 shares of new stock would be offered to stockholders at $100 per share. The Republic company expects to secure control of all of the issued common stock of the Torbensen concern of which there are 7500 authorized, par $100 and 3950 outstanding. There are also 10,000 shares of $100 par preferred of which 5000 shares have been issued. It is stated that this deal will give the Republic company the control of the only internal gear patents in existence.

$10,000,000 in Cars Tied Up

DETROIT, Feb. 19—More than $10,000,000 worth of motor cars are tied up, here, because of existing freight conditions produced by embargoes declared by 30 railroads since the beginning of the U-boat war. These figures are based on a statement made by J. S. Marvin, general traffic manager of the National Automobile Chamber of Commerce, who states that "unless something improves matters radically in the next few weeks, the situation will become even more serious." Marvin found that there are more than 25,000 empty freight cars tied up in Chicago.

The Packard company has approximately $1,000,000 worth of cars tied up and is driving its products to Toledo, Cleveland and Columbus. The Ford Motor Co., which requires at least 50 empties daily, is now securing from 6 to 10 each day. Dodge Brothers are sending cars under the "drive-away" rule and are thus shipping an average of 150 per day. The Cadillac Motor Car Co. has 1000 cars ordered, paid for and ready for shipment which it has been forced to place in storage because of lack of shipping facilities. The Paige-Detroit company is in the same position with a similar number of automobiles.

The Chalmers company has 300 cars in storage and is threatened with a shortage of material. More than 400 cars lay idle at the Hupp Motor Co.'s plant with little prospect of early shipment, and the company has been paying express charges of $250 per day in order to secure materials from Cleveland alone.

Maxwell, Hudson, King and other big concerns are experiencing the same conditions and all are busy fitting their products for those drivers from the different agencies who come to navigate the cars over the roads to their home towns. And many companies are driving their cars to nearby cities where they hope to secure better shipping facilities.

Kansas City Attendance 195,000

KANSAS CITY, Feb. 20 — Special Telegram—Unofficial figures place the attendance for the Kansas City show at 195,000; this is one-third greater than last year. The total number of dealers registered to date is 3300. It is estimated that 6500 dealers from out of town will register before the show closes.

Disbrow Officials Appointed

CLEVELAND, Feb. 19—W. D. Callinan has been made first vice-president of the Disbrow Motors Co. of this city of which Louis Disbrow is president. Edward P. Strong is second vice-president and Morris Becker, secretary and treasurer.

Will Manufacture Truck Unit

GRAND RAPIDS, MICH., Feb. 19—The Miller Auto Sales Co. will manufacture a new truck unit to be known as the Mil-Ton for which it will act as state distributer and assembler. To properly finance the undertaking, changes were made in the company and W. C. Miller was made president and general sales manager; L. W. Coppeck, formerly of the Decatur Truck Co., vice-president, and L. A. Corcora, secretary and treasurer.

Continental Breaks Production Record

DETROIT, Feb. 19—On Jan. 31, the Continental Motors Co. at Muskegon, Mich., turned out 360 finished motors which is 46 motors more than it ever has turned out in a single day. During January, the company produced 6536 motors. The December record was 5556.

Kent Moves to Belleville

NEW YORK, Feb. 17—The general offices of the Kent Motors Co., up to the present located at 1790 Broadway, will be moved March 31 to the company's new factory at Belleville, N. J.

Avery Passes Great Divide

SAN FRANCISCO, Feb. 17—W. A. Avery, vice-president of the Chanslor & Lyon Co., died Feb. 4.

Local Ford Agents Now Repair Car Defects

Must Be Made Within 90 Days of Sale—Long Island City Plant to Be Abandoned for Kearney, N. J.

DETROIT, Feb. 19—Ford agents are receiving advice from the Ford Motor Co. saying that they may now make repairs and replace defective parts to cars if in the judgment of the agents such parts are defective, or if these defects are within 90 days after the date of the sale of a car. After this time has elapsed, they must be sent to Detroit. In the past, if the purchaser wanted a defective part replaced, it had first to be sent to Detroit or to the nearest branch for inspection.

NEWARK, N. J., Feb. 20—The Long Island City plant of the Ford Motor Co. will be abandoned as soon as the plant in Kearney, N. J., is erected. This will be in about 1 year. Building plans were filed last week and already the company has started building docks there. The structure will be four stories.

Warner Gear Plans Expansion

INDIANAPOLIS, Feb. 20—The Warner Gear Co., Muncie, Ind., will begin the construction of new buildings and the installation of equipment that will double the capacity of the plant. The company's capital stock has been increased from $500,000 to $1,500,000. The number of employes will be increased from 1000 to 2000 when the improvements are completed.

Battery Salesmen Gather

MADISON, WIS., Feb. 19 — The French Battery & Carbon Co., Madison, Wis., held its first annual convention of salesmen and distributers at the factory on Feb. 13, 14 and 15. The program was arranged with the idea of correcting faults in the attitude and methods of salesmen; to impart and digest new ideas in a manner that they may be assimilated and put into immediate use and to help each worker to become a student of himself and of his relations to the company's work.

Haynes Avoids Freight Embargo

KOKOMO, IND., Feb. 20—The Haynes Automobile Co. is avoiding inconvenience and a business tie-up from freight embargoes by driving cars overland under their own power. Twenty-six touring cars were shipped to Detroit in this manner last Tuesday, and twenty-five cars left for the same destination last Friday night. Since the freight embargo delayed shipments the company has shipped cars under their own power as far east as Johnson City, N. J., a distance of 790 miles. Cars are to be sent to dealers in the same manner in Cleveland and Cincinnati.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tire	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-44	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	122	32x4	SS	1195	†1250	1195	1495	1820	....	....
ALLEN																	
Classic	4-3½x5	22.5	Wsths	Stmbg	Wsths	C	3	112	32x3½	SS	850	850	†850	1175	....	....	1195
AMERICAN-SIX																	
A	6-3 x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1285	....	....	....	....	....
AMS-STERLING																	
17	4-3½x4½	15.6	Bosch	Stmbg	Bosch	DP	3	110	30x3½	SS	....	....	....	....	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25.4	Wsths	Own	Wsths	DP	3	120	33x4	SS	1275	1250	*1250	....	....	....	....
APPERSON																	
6-17	6-3½x5	29.4	Remy	Rafid	Bijur	DP	3	130	34x4	SS	1750	....	1750	....	....	....	....
8-17	8-3½x5	31.2	Remy	Rafid	Bijur	DP	3	130	35x4½	SS	2000	....	2000	....	....	....	....
ARBENZ																	
	4-3½x5	16.9	Conn	Carter	Disco	C	3	108	30x3½	C	....	675	....	....	....	....	....
AUBURN																	
6-39	6-3½x5	23.4	Remy	Rafid	Remy	DP	3	120	34x4	SS	1145	1145	†1145	....	....	....	1320
6-44	6-3½x5½	29.4	Deleo	Rafid	Deleo	DP	3	131	35x4½	SS	....	†1535	1535	....	....	....	1785
AUSTIN																	
Hy-King	12-2½x5	39.7	Deleo	Stmbg	Deleo	D	6	142½	34x4½	SS	3750	3750	3750	4550	4950	5250	....
BIDDLE																	
D	4-3½x5½	22.5	Dixie	Zenith	G & D	DP	4	122	32x4	QD	2300	2350	†2275	....	....	3800	3900
BOUR-DAVIS																	
17	6-3½x4½	25.3	G & D	Stmbg	G & D	DP	3	118	32x4	QD	....	1250	....	....	....	....	....
BREWSTER																	
	4-4x5½	25.6	Bosch	Zenith	U. S. L.	C	3	125	34x4½	SS	†6500	....	....	....	7500	7700	....
BRISCOE																	
B4-24	4-3⅛x5½	16.3	Conn	Mayer	Splitdorf	C	3	105	30x3½	QD	685	685	†685	....	....	....	....
8-38	8-3 x3½	28.8	Remy	Zenith	Apleo	C	3	114	32x3½	QD	‡985	985	....	....	....	....	....
4-38	4-3⅛x5½	18.9	Remy	Mayer	Apleo	C	3	114	32x3½	QD	‡785	785	....	....	....	....	....
BRUNSWICK																	
	4-4½x5½	36.1	Bosch	Rafid	Wsths	..	3	....	....	....	....	....	1950	....	....	....	....
BUICK																	
D 4-34-35	4-3½x4½	18.2	Deleo	Marvel	Deleo	C	3	106	31x4	C	660	675	....	....	....	....	....
6-44-47	6-3½x4½	25.3	Deleo	Marvel	Deleo	C	3	115	34x4	SS	1040	1070	‡1440	....	1835	....	....
E-49	6-3½x4½	27.3	Deleo	Marvel	Deleo	DD	3	124	34x4½	SS	....	....	1385	....	....	...	....
CADILLAC																	
55	8-3½x5½	31.2	Deleo	Own	Deleo	D	3	{132 125	36x4½	SS	†2240	2340	2340	2960	....	3760	2835
CASE																	
T-17	4-3½x6	21.0	Conn	Rafid	A-Lite	C	3	120	34x4	QD	†1190	....	1190	....	. ..	....	....
CHALMERS																	
6-30	6-3½x4½	25.4	Remy	Stmbg	Wsths	DP	3	{115 122	32x4	SS	1230	1250	1350	1440	1850	2550	....
CHANDLER																	
17	6-3½x5	27.3	Bosch	Rafid	G & D	D	3	123	34x4	SS	†1395	....	1395	1995	1995	2695	1995
CHEVROLET																	
4-90	4-3⅛x4	21.7	Conn	Zenith	A-Lite	C	3	102	30x3½	C	550	550	....	....	....	....	....
F5-F2	4-3⅛x4	21.7	Conn	Zenith	A-Lite	C	3	112	32x3½	SS	800	800	....	....	....	....	....
D	8-3½x4	36.45	Conn	....	A-Lite	C	3	120	34x4	SS	1385	....	....	....	....	....	....
COLE																	
8-60	8-3½x4½	39.2	Deleo	Stmbg	Deleo	C	3	127	35x4½	SS	†1695	....	1695	....	2295	2295	2195
CROW-ELKHART																	
CE-35	4-3½x5	19.6	Conn	Zenith	Dyneto	DP	3	114	32x3½	SS	†825	795	....	....	....	....	935
DANIELS																	
8	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	†2600	....	2800	....	....	4000	....
DAVIS																	
H & I	6-3½x4½	25.3	Deleo	Stmbg	Deleo	C	3	119	34x4	....	1195	1195	1195	1595	1795	....	1995
J	6-3½x5½	29.4	Deleo	Stmbg	Deleo	C	3	124	34x4½	....	....	1495	1495	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25.3	Conn	Ball	A-Lite	D	3	119	33x4	SS	‡1195	1195	....	1378	....	....	1398
F	4-3½x4½	22.5	Dixie	Schebler	Dyneto	D	3	112	32x4	SS	....	985	....	....	....	....	....
DISPATCH																	
G	4-3½x5	22.5	Bosch	Rafid	U.S.L.	D	4	120	36x3½	....	1135	1210	....	1400	....	....	....
DIXIE FLYER																	
1917	4-3½x5	16.9	Conn	Carter	Dyneto	C	3	113	32x3½	SS	†795	795	....	....	....	....	....
DODGE BROTHERS																	
	4-3½x4½	24	Deleo	Stewart	N.E.	D	3	114	32x3½	S	785	785	....	950	1185	....	950
DORRIS																	
I-B-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	3	138	36x4½	SS	....	....	3475	3350	3350	3675	..

Model	Motor	S. A. E.	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tire	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
LOZIER																	
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	..		....
83	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																	
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD		132	35x4½	SS	....	....	1500	....	....	....	....
MADISON																	
4	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	120	34x4	SS	....	....	....	....	....	....	....
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	115	34x4	SS	1050-1150	....	....	....	....	....	....
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	124	34x4	SS	†1150	{1150 1250}	1150-1250	....	....	....	....
MAIBOHM																	
A	4-3½x4	15.6	a.Kent	Zenith	Disco	DD	3	105	30x3½	SS	695	....	....	....	....	....	....
MAJESTIC																	
M	8-3 x5	28.8	A.Kent	....	R & M	DP	3	125	32x4	....	†1500	1650	1650	....	....	....	....
A	8-3½x5	33.8	A.Kent	....	R & M	DP	3	135	35x5	....	†3000	3050	3000	....	....	....	....
MARION HANDLEY																	
6-40	6-3½x5	23.4	Wsths	Stmbg	Wsths	DD	3	120	32x4	SS	†1275	....	1275	....	....	....	....
6-60	6-3½x5½	29.4	Wsths	Stmbg	Wsths	DD	3	125	35x4½	SS	....	....	1475	....	....	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bosch	C	3	136	34x4½	QD	††3100	3050	3100	....	4100	4300	....
MAXWELL																	
25	4-3½x4½	21	Sims	K-D	A.Kent	C	3	103	30x3½	C	620	635	....	865	965	....	....
McFARLAN																	
	6-4½x6	48.6	Bosch	Stmbg	Wsths	DP	3	136	35x5	QDR	3750	3800	3800	....	....	....	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Corser	U.S.L.	DD	4	132	34x4½	QDC	†3500	*3500	..	..	....	....	....
22-73	4-3½x6½	22.5	Bosch	Corser	U.S.L.	DD	4	115	32x4	QDC	3400	Raceabout, 3250	..	....	....	....	....
METZ																	
25	4-3½x4	24	Dixie	A.W.T.	G & D	F		108	32x3½	C	545	545	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafid	Splitdorf	C	3	120	32x4	SS	1150	1150	....	....	....	....	300x
C-42	6-3½x5	29.4	Conn	Rafid	Wsths	C	3	127	34x4	SS	‡1425	1425	1460	1995	2175	2785	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1495	1495	....	....	....	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1840	....	1840	2490	2440	....	....
MONARCH																	
	8-3 x5	28.8	A.Kent	Zenith	....	D	3	125	35x4½	....	....	....	1800	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Heinse	D	3	108	32x3½	SS	795	795	....	....	....	....	....
N-O	6-3½x4½	25.4	Heinse	Stmbg	Heinse	D	3	115	33x4	SS	995	995	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	DC	565	....	....	....	965	....	....
M-4	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	DC	....	985	....	....	....	....	....
MOON																	
6-43	6-3½x4½	25.3	Deleo	Rafid	Deleo	DD	3	118	32x4	SS	‡1295	1295	....	....	....	....	1450
6-66	6-3½x5½	29.4	Deleo	Rafid	Deleo	DD	3	125	35x4½	SS	†1690	....	1690	1690	2350	....	....
MURRAY																	
70-T	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	..	2500	....	2500	....	....	Chassis	2900
NATIONAL																	
Hgy	6-3½x5½	29.4	Dixie	Rafid	Wsths	C	3	128	34x4½	QDR	†1750	....	1750	2400	2250	....	....
Hgy	12-2½x4½	39.7	Deleo	Rafid	Bijur	C	3	128	34x4½	QDR	†2150	....	2150	2900	2750	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	....	....	....	....	2200	....	....
OAKLAND																	
34	6-2½x4½	18.9	Deleo	Marvel	Deleo	C	3	112	32x4	SS	‡ 875	875	....	....	....	....	{995 1020
50	8-3½x4½	39.2	Deleo	Stmbg	Deleo	C	3	127	34x4½	SS	....	....	1585	....	....	....	....
OLDSMOBILE																	
45	8-2½x4½	26.4	Deleo	Johnson	Deleo	C	3	120	33x4	SS	1295	1295	....	....	1850	....	1775
46	6-2½x4½	19.8	Deleo	Johnson	Deleo	C	3	112	32x4	SS	†1095	1095	...	....	....	....	....
OVERLAND																	
85-4	4-4½x4½	27.2	Conn	Titsn	A-Lite	C	3	112	32x4	SS	825	850	....	1250	1450	....	....
85-6	6-3½x4½	25.3	Conn	Titsn	A-Lite	C	3	116	32x4	SS	970	985	....	1265	1565	....	....
OWEN																	
M-35	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	..	125	34x4½	SS	....	3300	....	3650	....	4250	....
O-36	6-3½x5½	33.7	Bosch	Zenith	O-M	OM	..	136	35x5	SS	‡3950	†3950	3950	....	....	5000	....
PACKARD																	
2-35								{125									
2-25	12-3 x5	43.2	Bijur	Own	Bijur	DD	3	126	35x5	QDC	3050	3050	3050	4150	....	4450	....
PAIGE																	
6-38	6-3½x5	28.4	Remy	Rafid	G & D	D	3	117	32x4	SS	1175	1175	....	....	....	....	....
6-46	6-3½x5½	29.4	Remy	Rafid	G & D	D	3	124	35x4½	SS	....	....	1465	....	....	....	....

*5-passenger. †4-passenger. ‡2-passenger.

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9	6-3½x5	16.9	Conn	Carter	Wsths	C	3	108	30x3½	QDC	‡990	995	..	..	....	1060	..	615
DREXEL																			
R-30-35	4-3½x5	19.6	Bosch	Stmbg	Bjur	C	3	113	33x4	....	855	855	....	....	....	....	....	....
	4-3½x5	19.6	Bosch	Stmbg	Bijur	D	3	118	34x4	....	†1485	....	1845	....	....	....	....	....
ELCAR																			
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS	845	845	†845	....	....	....	....	....
ELGIN																			
	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	116	33x4	....	†985	985	....	....	....	....	....	....
EMERSON																			
Four	4-3½x4	22.5	A.Kent	Kngstn	....	D	3	110	30x3½	C	....	895	....	....	....	....	....	....
EMPIRE																			
45	4-3½x5	24.0	A-Lite	Stmbg	A-Lite	C	3	116	33x4	SS	....	960	....	....	....	....	....	....
60-R	6-3½x4½	25.6	Conn	Stmbg	A-Lite	C	3	120	34x4	SS	†1145	....	....	....	....	1625	....	....
70	6-3½x4½	25.6	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1235	....	....	....	....	....	....
ENGER																			
12	12-2½x3½	34.2	Wsths	Stmbg	Wsths	DP	3	116	32x4	SS	....	1295	....	....	....	....	....	....
4	4-3½x4½	21.7	A-Kent	....	....	C	3	106	32x3½	....	....	895	....	....	....	....	....	....
FIAT																			....
55	4-5½x6½	42	Wsths	Zenith	Wsths	D	4	140	35x5	QDC	....	....	5500	....	....	6500		
56	6-4½x6	45.9	Bosch	Own	Own	D	4	135	37x5	QDC	‡5350	5350	5350	....	....	....	....	....
FORD																			
T	4-3½x4	22.5	Own	{Holly {Kngstn	....	D	2	100	30x3½	C	345	360	....	505	645	....	....	....
FOSTORIA																			
	4-3 x4½	14.4	Remy	Zenith	....	D	3	108	30x3½	C	....	695	....	....	....	....	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	32x4	SS	1800	1850	†1850	2650	2750	3000	....	
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	....	1250	....	....	1325	....	....	
GRANT																			
K	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	112	32x3½	....	‡825	825	....	1050	1000	....	....	
HACKETT																			
Four	4-3½x4½	22.5	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†888	888	....	....	....	....	....	
HAL TWELVE																			
	12-2½x5	39.7	....	Stmbg	Wsths	DP	3	135	34x4½	SS	2600	†2600	2600	....	....	4500	3500	
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....	
R	6-3½x5	23.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....	
HARROUN	4-3½x5½	16.9	Bosch	Special	Remy	C	3	106	30x3½		....	595	....	..	..	....	....	
HARVARD																			
4-2T	4-3 x4½	14.4	....	Zenith	Wagner	C	3	100	28x3	QD	750	....	....	....	....	....	....	
HAYNES																			
36	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1595	....	....	2260	....	....	
37	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1725	....	1725	....	2390	....	....	
40	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	121	34x4½	SS	....	2095	....	....	2760	....	....	
41	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2225	....	2225	....	2890	....	....	
HOLLIER																			
186	6-3 x4½	21.6	Remy	Stewart	A-C	C	3	116	32x3½	SS	....	895	....	....	....	....	....	
178	8-3 x4½	28.8	A.Kent	Stewart	Apleo	C	3	116	34x4	SS	†1185	1185	....	....	....	....	....	
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS	1650	....	1650	1950	2175	2925	....	
HUPMOBILE																			
	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	119	34x4	SS	1185	1185	....	....	1735	....	....	
N-U	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	134	35x4½	SS	....	....	1340	....	....	....	....	
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	875	925	†940	....	....	....	....	
JACKSON																			
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS	1295	1295	†1395	....	1995	....	1505	
350	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	112	32x4	SS	....	1195	....	....	....	....	....	
JEFFERY																			
Four	4-3½x5½	22.5	Dixie	Stmbg	Bijur	DP	3	116	34x4	SS	1065	....	1095	....	1260	....	1320	
Six	6-3½x5½	29.4	Dixie	Rafid	Bijur	DP	3	125	34x4	SS	1435	....	1465	....	1630	....	1690	
JORDAN																			
Sixty	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DD	3	127	35x4½	SS	1650	†1750	1650	2300	2350	3000	....	
KING																			
E	8-3 x5	28.8	A.Kent	Ball	W.Lnrd	DP	3	120	34x4	SS	†1585	‡1585	1585	....	2150	....	....	
KISSEL																			
642	6-3½x5½	31.54	Eisman	Stmbg	Own	DD	3	128	34x4	SS	....	1650	1850	....	2000	....	....	
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	33x4	SS	†1195	1195	....	1635	1950	....	1635	
KLINE																			
636	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1175	1195	†1195	....	....	....	....	
LAUREL																			
35	4-3½x4½	22.5	Dixie	Schebler	Disco	D	3	112	32x3½	QD	†895	850	885	....	....	....	....	
LEXINGTON																			
6-O-17	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	†1185	1185	....	1350	1350	....	....	
6-P	6-4½x5½	40.8	A.Kent	Stmbg	Wsths	C	3	144 132	36x4½	QD	†2675	....	2675	....	....	....	....	
LIBERTY																			
6	6-3½x4½	23.4	Delco	Rafid	Delco	DP	3	115	32x4		†1195	1195	....	....	1795	....	....	
LOCOMOBILE																			
R-7	6-4½x5	43.3	Eisman	Ball	Wsths	DD	4	130	37x5	QDC	†4750	*4600	4600	....	....	5600	....	
M-7	6-4½x5½	43.6	Eisman	Own	Wsths	DD	4	142	37x5	QDC	*5400	....	5400	....	....	6500	....	
PAIGE-DETROIT																			
20	4-3½x4½	15.6	Conn	Schebler	A-C	DD	3	96	30x3½	C	845	..	..	....	....	.....	..	....
32	4-3½x5	19.6	Conn	Carter	Disco	DD	3	110	32x3½	C	....	995	....	....	....	....	....	....
PATERSON																			
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	32x4	C	†1095	1095	1095	....	....	....	....	
PATHFINDER																			
2B-TC-2C	12-2½x5	39.7	Delco	Stmbg	Delco	DD	3	135	35x5	SS	....	....	3250	....	....	....	....	
PEERLESS																			
56-2	8-3½x5	33.8	A.Kent	Special	G & D	DD	3	125	35x4½	SS	†1890	....	1890	2700	2750	2260	....	
PHIANNA																			
M	4-3½x6	24.9	Bosch	H & N	W.Lnd.	DD	4	....	32x4½	....	Chassis	....	3600	....	....	....	....	
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	36x4½	QDC	4800	4800	†4800	5900	....	....	....	
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	37x5	QDC	5400	5400	5000	6800	....	....	....	
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	38x5½	QDC	†6400	6400	6500	7800	....	....	....	
PILOT																			
6-45	6-3½x5	23.4	Delco	Zenith	Delco	DP	3	119	32x4	SS	†1150	1150	....	....	....	....	....	
PREMIER																			
6-B	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	†1895	....	1895	....	2900	3150	....	
PRINCESS																			
4-36	4-3½x4½	22.5	Splitdorf	Schebler	Disco	D	3	108	32x3½	....	775	775	‡775	....	....	....	....	
PULLMAN																			
424-32	4-3½x4½	22.5	Dixie	Stmbg	Splitdorf	D	3	114	31x4	SS	825	825	†825	....	....	....	....	
REGAL																			
4-32	4-3½x4½	19.6	Heinze	Carter	Heinze	C	3	108	30x3½	DC	....	745	....	....	....	....	....	
F	8-3 x4½	28.8	....	Johnson	Dyneto	C	3	115	33x4	SS	1200	....	....	....	....	....	....	
REPUBLIC																			
E	6-4½x5	43.3	Delco	Rafid	Delco	C	4	133	36x4½	SS	....	†2950	2950	....	....	....	....	
REO																			
M	6-3 x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	†1250	1250	....	1750	....	....	
R	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS	‡875	875	....	....	....	....	1025	
RICHMOND																			
6-17	6-3½x5	29.4	Delco	Stmbg	Delco	C	3	124	35x4½	....	....	....	....	....	....	.....		
4-35	4-4 x4½	25.6	Dixie	Stmbg	Delco	C	3	124	35x4½	....	900	900	925	....	....	....	....	
ROAMER																			
R.A.	6-3½x5	23.4	Bosch	Stmbg	Bijur	D	3	127	34x4	SS	2150	1850	....	....	....	....	....	
ROSS																			
C	8-3½x5	33.8	A.Kent	Zenith	W.Lnrd.	DD	3	130	35x4½	SS	‡1550	†1550	1550	....	....	....	....	
SAXON																			
B-5-R	4-2½x4	12.1	A.Kent	Rebh	Wagner	DD	3	96	30x3	DC	495	....	....	....	....	....	....	
S-4	6-2½x4½	19.8	Remy	Rafid	Wagner	DD	3	112	32x3½	SS	....	865	....	....	....	....	....	
SCRIPPS-BOOTH																			
D	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	1460	
G	4-3½x4	24.5	Remy	Zenith	Remy	C	3	110	30x3½	C	985	....	....	1450	....	....	....	
SIMPLEX																			
5	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QDC	Chassis	6000	....	....	....	....	....	
SINGER																			
17	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	136	35x5	QD	3500	†3500	3500	....	....	4600	....	
STANDARD																			
8	8-3½x5	33.8	Splitdorf	Zenith	Apleo	D	3	127	35x4½	....	†1950	....	2050	....	....	3500	2500	
STANLEY																			
Steamer	2-4 x6	....	....	....	....	..	..	130	34x4½	SS	‡2300	2200	2300	....	....	....	....	
STEARNS																			
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	QDC	††1450	1450	....	2050	....	2900	2050	
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	123	35x4½	QDC	†2150	....	2150	2900	....	3500	....	
STEPHENS																			
60-65	6-3½x4½	25.3	Conn	Zenith	A-Lite	DD	3	115	32x4	....	‡1150	1150	....	....	....	....	....	
STEWART																			
T	6-3½x5	29.4	Bosch	Rafid	Wsths	D	3	127	34x4½	SS	‡1950	....	1950	....	....	....	....	
STUDEBAKER																			
SF-4-40	4-3½x5	24.0	Remy	Schebler	Wagner	C	3	112	34x4	SS	‡930	....	940	....	....	....	1140	
ED-6-50	6-3½x5	36.32	Remy	Schebler	Wagner	C	3	122	34x4	SS	‡1170	....	1180	1780	1700	2600	1380	
STUTZ																			
R	4-4½x5½	36.1	Bosch	Stmbg	Remy	C	3	130	34x4½	SS	2275	†2550	*2550	....	....	....	....	
SUN																			
17	6-3½x5	23.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1145	1095	1145	....	1295	....	....	
VELIE																			
28	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	115	32x4	SS	1115	1135	†1135	1750	1685	....	....	
27	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	4	124	35x4½	SS	....	....	1600	....	....	....	....	
WESTCOTT																			{3190
S-17	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	1590	1590	1690	....	....	....	{3090	
WHITE																			
GAH	4-3½x5½	22.5	Bosch	Own	Own	P	4	115	32x4	QDC	‡2650	2700	.....	..	....	....	....	
GED	4-4½x6½	28.9	Bosch	Own	Own	P	4	133½	36x4½	QDC	3750	....	3800	....	....	....	....	
16-Valve	4-4½x5½	28.9	....	Own	L.N.	P	4	137½	37x5	....	....	....	4600	....	....	....	....	
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	121	34x4½	SS	....	....	1285	....	1950	1960	....	
WILLYS																			
88-6	6-3½x5½	29.4	Conn	Tltsn	A-Lite	C	3	125	35x4½	SS	....	....	1325	....	....	....	....	
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	2685	2685	2785	3600	3900	3900	....	
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4500	4750	4750	....	
YALE																			
8	8-3½x4½	31.3	Remy	Rafid	Disco	DD	3	126	34x	....	....	....	1350	....	....	....	....	

*6-passenger. †4-passenger, ‡3-passenger.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Tltsn" Tillottson, "Atzr" Atomizer, "Rebh" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myers. NOTE—"37½x5½r" means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x means $300 extra.

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Stutz Profits Top $649,000

INDIANAPOLIS, Feb. 16—Net profits of $649,042 for the year ended Dec. 31, 1916, are reported by the Stutz Motor Co. These are equal to $8.65 per share on the 75,000 shares of stock, no par value of the parent company, the Stutz Motor Car Co. of America, which took over the old company last June. The income account for the 7 months ended Dec. 31 shows net profits for the period of $381,061, equivalent to $5.08 per share. During that period $1,771,328 in cars were sold. During the whole year the company produced 1535 cars, an increase of 42 per cent over 1915.

Within the past year the company has completed its new building so that it now owns and occupies the entire square block from Tenth Street and Capital Avenue. In addition to its new building the company has leased another building wherein it has installed new machinery at a cost of about $75,000 for the manufacture of its new 16-valve motors.

Takes Over Page Plants

MARSHALL, MICH., Feb. 14—The All-Season Body Co., incorporated for $500,000, will take over plants of Page Brothers Buggy Co., Marshall, Mich., to manufacture bodies. Officers are: President, W. L. Page; vice-president, J. A. McAvoy; secretary, E. E. Page; treasurer, W. J. Dibble. The Briscoe Motor Corp. has signed contract for 5000 bodies with the new company.

Canadian S K F Bearing Plant

TORONTO, ONT., Feb. 17—The Canadian S K F Co., Ltd., has been organized and will manufacture and sell S K F bearings in the Dominion of Canada. Headquarters have been established at 47 King Street, West.

McQuay-Norris Adds Engineers

ST. LOUIS, Feb. 17—The McQuay-Norris Mfg. Co. has added a number of sales engineers to its force as follows: J. H. Bishop will travel out of the Kansas City branch office; Arthur F. Frost will travel out of the Dallas branch office; P. T. Egbert and G. T. Parsons will travel out of the New York branch office; J. H. Griffith will travel out of the Pittsburgh branch office, and George Heidenreich will travel out of the Cincinnati branch office.

Amazon Plans Expansion

COLUMBUS, O., Feb. 17—The Amazon Rubber Co. has been incorporated, with a capital of $500,000, and has taken over and will operate the Amazon Tire & Rubber Co. Extensive expansion is planned.

Coming—THE SHOW CALENDAR—Events

Albany, N. Y.	Sixth Annual, State Armory, Albany Automobile Dealers Assn.	Feb. 17-24
Bridgeport, Conn.	Fourth Annual, State Armory and Casino; Mgr.: B. B. Steiber.	Feb. 19-24
Pittsfield, Mass.	State Armory; Mgr.; James L. Callahan.	Feb. 19-24
Portland, Me.	Exposition Building	Feb. 19-24
South Bethlehem, Pa.	Third Annual, Pleasure Cars, Coliseum; Mgr.: J. L. Elliott.	Feb. 19-24
St. Louis	St. Louis Automobile Manufacturers and Dealers Assn., Overland Bldg.; Mgr.: Robert E. Lee.	Feb. 19-24
Duluth, Minn.	New Armory Bldg., Duluth Automobile Dealers Assn.; Mgr.: W. Daly.	Feb. 19-24
Syracuse, N. Y.	State Armory, Syracuse Automobile Dealers Assn.; Mgr.: H. T. Gardner.	Feb. 19-24
Des Moines, Ia.	Eighth Annual, Des Moines Automobile Dealers Assn., Coliseum; Mgr.: C. G. Van Vliet.	Feb. 19-24
Grand Rapids, Mich.	Eighth Annual Automobile Business Assn. of Grand Rapids, Klingman Furniture; Mgr.: Ernest T. Conlon.	Feb. 19-24
Springfield, O.	Memorial Hall, Springfield Automobile Trade Assn.; Sec.: C. S. Burke.	Feb. 19-24
Portland, Me.	Portland Automobile Dealers Assn., Portland Exposition Bldg.; Mgr.: Howard B. Chandler.	Feb. 19-24
Springfield, Mo.	Springfield Automobile and Accessories Assn.; Convention Hall.	Feb. 21-23
Flint, Mich.	Flint Automobile and Accessory Houses, Coliseum, Lake Side Park; Mgr.: E. W. Jeffers.	Feb. 21-24
Wausau, Wis.	First Annual, Automobile Dealers Assn.; Grand Opera House.	Feb. 21-24
Asheville, N. C.	Asheville Automobile Trade Assn., Miller Bldg.	Feb. 22-24
Newark, N. J.	N. J. Automobile Trade Assn., First Regiment Armory; Mgr.: Claude E. Holgate.	Feb. 24-Mar. 3
Atlanta, Ga.	Atlanta Automobile Trade and Accessory Assn., Auditorium; Mgr.: R. H. Martin.	Feb. 24-Mar. 3
Brooklyn, N. Y.	Sixth Annual, Brooklyn Motor Vehicle Dealers Assn., Twenty-third Regiment Armory.	Feb. 24-Mar. 6
Charleston, S. C.	First Charleston Adv. Club and Local Dealers Tent, Marion Square; Mgr.: Sidney Rittenberg.	Feb. 26-Mar. 3
Wilkes-Barre, Pa.	Mgr.: Hugh B. Andrews	Feb. 26-Mar. 3
Utica, N. Y.	Utica Automobile Dealers Assn., State Armory.	Feb. 26-Mar. 3
Omaha, Neb.	Twelfth Annual Omaha Automobile Show Assn.; Mgr: Clarke G. Powell.	Feb. 26-Mar. 3
South Bethlehem, Pa.	Commercial Vehicles; Mgr.: J. L. Elliott.	Feb. 26-Mar. 3
Oneonta, N. Y.	Armory; Mgr.: John Kelly	Feb. 28-Mar. 3
Champaign and Urbana, Ill.	Automobile Trade Association of Champaign County, University of Illinois, Armory; Mgr.: Leslie R. Lumley.	Mar. 1-3
Green Bay, Wis.	Brown County Automobile Trade Assn., Armory B.	Mar. 3-5
Washington, D. C.	Middle Atlantic Motor Assn. Inc., Union Bldg.	Mar. 3-10
Boston	Fifteenth Annual, Boston Automobile Dealers Assn.; Gen. Mgr.: C. I. Campbell.	Mar. 3-10
Jamestown, N. Y.	Third Annual, Jamestown Automobile Dealers Assn., Armory; Mgr.: C. A. Hanvey.	Mar. 5-10
Wheeling, W. Va.	Automobile Dealers Assn., Market Auditorium Bldg.; Mgr.; F. A. Henderson.	Mar. 5-10
Bridgeton, N. J.	Second Annual, Bridgeton Automobile Dealers Assn., Preston Calender Plant; Mgr.: J. W. Acton.	Mar. 6-10
Fort Dodge, Ia.	Sixth Annual, White Terminal Warehouse; Mgr.: G. W. Tremain.	Mar. 6-10
St. Joseph, Mo.	St. Joseph Automobile Dealers Assn., Auditorium; Harry E. Mooers, Mgr.	Mar. 7-10
Canton, O.	Motor Car Co. showrooms; Mgr.: P. E. Moock, chairman of committee.	Mar. 7-14
Zanesville, Ohio	Muskingum Motor Club.	Mar. 10-17
Vancouver, B. C.	British Columbia Automobile Assn., Horse Show Building.	Mar. 12-17
Fargo, N. D.	North Dakota and Minnesota Auto Dealers Assn., Auditorium and Armory; Mgr.: W. M. Ball.	Mar. 13-16
Mason City, Ia.	Third Annual, Armory	Mar. 14-17
Davenport, Ia.	Coliseum Bldg., Tri-City Automobile Trade Assn.; Mgr.: C. F. Burmeister.	Mar. 14-17
Pittsburgh, Pa.	Automobile Dealers Assn. of Pittsburgh; Motor Square Garden; Mgr., J. J. Bell.	Mar. 17-24
Paterson, N. J.	Sixth Annual Paterson Automobile Dealers Assn., Auditorium; Mgr.: Robert A. Mitchell.	Mar. 19-24
Cedar Rapids, Ia.	Cedar Rapids Automobile Trade Assn., Coliseum.	Mar. 19-24
Trenton, N. J.	Trenton Automobile Trade Assn., Armory; Mgr.: John L. Brock.	Mar. 21-24
Mankato, Minn.	Third Annual, Manakato Retail Automobile Dealers' Assn.	Mar. 22-24
Deadwood, S. D.	Fifth Annual; Mgr.: J. E. Nelson.	Mar. 27-31
Clinton, Ia.	Clinton Automobile Dealers Assn., Coliseum; management: Executive Committee.	Mar. 28-31
Stockton, Cal.	Second Annual San Joaquin Auto Trades Assn.; Mgr.: Samuel S. Cohn.	April 4-7
Spokane, Wash.	Interstate Fair	Sept. 2-9
Milwaukee, Wis.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15

General

Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6

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When you equip with the WALTHAM—



—***you equip your car*** with the only clock scientifically constructed for automobile time-keeping, therefore the only accurate and reliable automobile clock made.

—***you equip the buyer of your car*** with a comfort and convenience that he expects to get with a good car, and which he has reason to appreciate after he gets it.

—***you equip your dealer and salesman*** with a selling argument that drives home to the prospective buyer the high quality and completeness of your car's equipment.

WALTHAM WATCH COMPANY, WALTHAM, MASS.

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Flawless
Non-Gran



Bushings of Non-Gran wear longer than bushings made of any other known metal

This is a strong statement to make, yet ten years' performance on most of America's high-priced cars, on the bulk of record-holding speed cars, and on the majority of taxicabs in this country proves it conclusively.

Bushings made of Non-Gran will outwear any other bronze bushings made.

So when you have your car overhauled be sure that your repairman replaces all worn bushings with bushings of Non-Gran—even though the Non-Gran equipped job may cost you five or ten dollars more.

A complete job of overhauling costs from $100 to $200. This charge is principally for labor.

You will be wise, then, to spend this five or ten extra dollars to get Non-Gran, because Non-Gran will make your car stand up as it never stood up before, and will save you hundreds of dollars in future heavy labor bills.

Practically all manufacturers of high-grade cars and motors use bushings of Non-Gran. They appreciate its importance in adding years of uninterrupted service to their products.

No other part of a car is more subject to wear than the bushings, consequently no other part of a car is the cause of more overhauling expense.

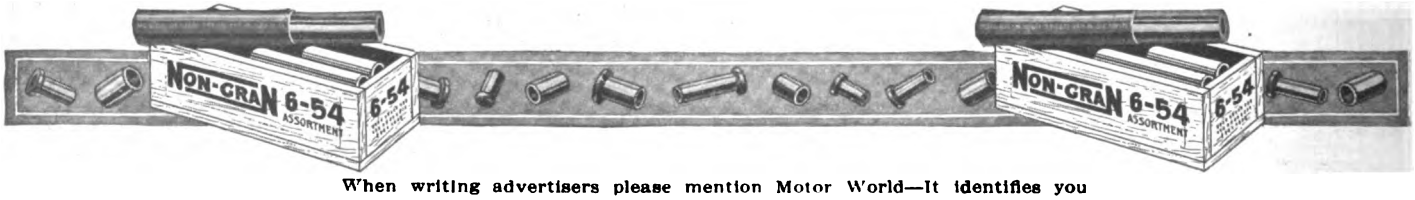
One big reason why high-grade cars give years longer service is because their bushings are made of Non-Gran and not the usual run of bearing bronze.

Cars rattle to pieces quickly, only because the bushings and bearings used are of a quality that cannot stand the strain.

American Bronze Company
Berwyn · · · Pennsylvania

Sole Makers of Non-Gran Bronze and largest exclusive manufacturers of Bearing Bronze in the World.

HIGH SPEED
NON-GRAN
BEARING BRONZE



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STEPHENS SIX

"The Car With Punch"

The Fireside Chair of the Road

When you are done with grim realities and seek the lighter fancies, when your mood prompts you to look for dream visions in tobacco smoke and to watch elves dance among the sparks of blazing logs, you settle down in your favorite fireside chair and there find complete comfort.

The same all-satisfying comfort can be found in a motor car if you select the right one. Fireside ease and all the accompanying delights are yours, no matter how rough the road, if you ride in a Stephens Six.

Built For Lasting Comfort

The Stephens Six is not only a car of power, strength, reliability and beauty. It also has the quality of comfort. In the Stephens Six you glide smoothly to your journey's end. You measure the distance not by the distressing bumps but by the miles of easy riding. After a long tour you cannot complain of physical fatigue. The car has spared you the jolts that often make automobile travel a tour of travail.

In designing the Stephens Six, comfort was one of the ends sought and attained by our engineers. The wheelbase measures 115 inches and the car weighs 2895 pounds. Thus the Stephens Six has the requisite length and weight to hold the road without side-sway and vibration even at high speed. The weight has been nicely distributed. The center of gravity is low. This insures safety as well as comfort. The springs of the Stephens Six are unusually long—of the semi-elliptic type, front and rear, and self-lubricating. The front spring is 37½ inches long and the rear spring 53½ inches, a total spring length of 91 inches for a car of 115-inch wheelbase.

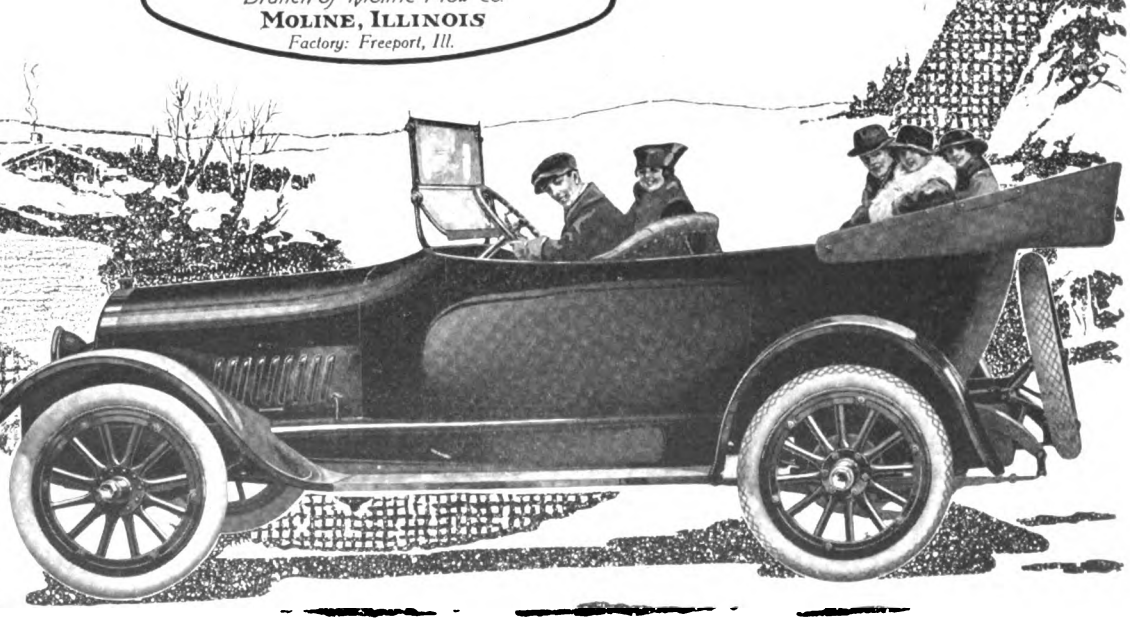
The upholstery of genuine grain leather, built over seats that are wide, deep and generously padded, also makes for comfort, while sufficient space has been left in both the front compartment and the tonneau for the complete ease of driver and passengers.

The Stephens Six is good to look upon. It is inviting. It radiates beauty and comfort.

Two Models, each $1150
Five-passenger Touring Car
Three-passenger Roadster

STEPHENS MOTOR
Branch of Moline Plow Co.
MOLINE, ILLINOIS
Factory: Freeport, Ill.

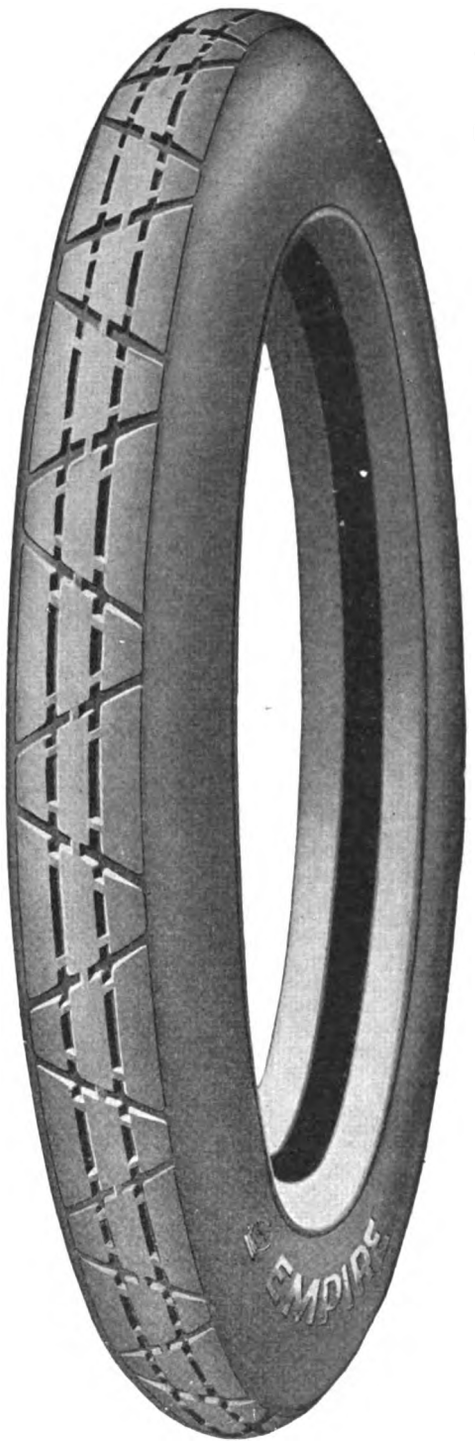
Dealers will find a ready demand for the Stephen Six. Our proposition is interesting.



$1150

FREEPORT, ILL.

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Low Mileage Cost, Satisfactory Returns

Lowest cost per mile is argument enough to sell a tire to any motorist living. Most tires claim lowest cost, but the one that actually produces it is the tire for you to handle.

Empire Tires

do actually give more miles per dollar than any of thirteen other leading tires. Read this table—it is authentic, based on the adjustment basis of each tire—34 x 4 size.

	Cost per Mile	List Price		Cost per Mile	List Price
Empire Red	**.0062**	**$31.45**	7th Tire	.0069	$34.60
Empire Gray	**.0064**	**25.75**	8th "	.0067	33.85
1st Tire	.0064	22.40	9th "	.0072	29.10
2nd "	.0064	22.40	10th "	.0087	35.10
3rd "	.0064	22.40	11th "	.0088	24.20
4th "	.0070	24.55	12th "	.0069	35.20
5th "	.0064	22.40	13th "	.0074	26.20
6th "	.0075	26.35			

Not only do Empire Tires equal any others in low mileage costs, but excel in long profits. Empire Tires appeal to the eye and are a permanent advertisement for you. They are continuously advertised.

Empire Red Tires are adjusted on a 5000-mile basis. Empire Gray Tires are adjusted on a 4000-mile basis.

Write or wire today for our unusual proposition.

EMPIRE TIRE AND RUBBER CORPORATION
Home Office and Factory, Trenton, N. J.

BRANCHES AND OFFICES:

Boston	Buffalo	Chicago	Detroit	Newark
New York City	Philadelphia	Pittsburgh	Los Angeles	Minneapolis

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All New Tires Must be Registered

Bring your new tires to us, have them registered and we will give you, without additional cost, an extra guarantee of 1500 MILES IN ADDITION TO THAT WHICH THE TIRE MAKER GIVES YOU.

Think what this means!

If your present guarantee is 3500 miles, you will then have 5000.
If your present guarantee is 6000 miles, you will then have 7500.

Buy your tires where you please

Have them registered here and we'll give you this free additional guarantee.

This guarantee is made possible by spring efficiency. Spring efficiency depends upon the free sliding motion of one leaf over the other. Springs and tires are put on a car to absorb the road shocks. If the springs don't work, the tires receive the blows. If the tires receive the blows they do not give the mileage they should. With maximum spring efficiency you get increased tire mileage and that saves money. *With Dann Insert between the spring leaves, you get maximum spring efficiency.* Our records show that twice and three times the mileage is secured when springs are at maximum efficiency. If your car is already equipped with DANN INSERT you get the above guarantee free of charge. If your car is not so equipped, we can install DANN INSERT in minimum time. The cost is moderate.

The Saving on Two Tires Pays the Cost of Dann Insert

DANN INSERT gives an easy riding quality that is unsurpassed.
DANN INSERT eliminates the squeak between the spring leaves.
DANN INSERT is sold on a "money back if not satisfied" basis.

Our New York Dealer

Ran the *remarkable* advertisement shown above — because "DANN INSERT" makes it possible.

If you're an OWNER—you'll want the guarantee—because it's a money saver.

If you're a DEALER—you'll want the DANN INSERT proposition—because it's a money maker.

If you're a MANUFACTURER—you'll want to add such a valuable selling point to your car.

Think it over!—and Mail the Coupon

"Demand Dann Insert in the Car You Buy"

THE DANN PRODUCTS COMPANY
1090 East 152nd Street
Cleveland, Ohio

The Dann Products Company
1090 E. 152nd St.
Cleveland, Ohio

Please send complete information relative to the above, as pertains to my requirements.

I am a { Car Owner / Dealer / Manufacturer }

Car.....

Model..... Year .....

Name.....

Address.....

When writing advertisers please mention Motor World—It identifies you

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1000 LOCKS in one

CASKEY-DUPREE
REG. U. S. PAT. OFF.
Thiefoil
IGNITION LOCK
"THE NATIONAL GUARDSMAN"
PAT. DEC. 24, 1912 – NOV. 11, 1913

THERE is a strong sales argument in the fact that in **Thiefoil Ignition Locks** you are selling your customers a thousand locks for the price of a single lock.

And when, in addition to this, you show him that he dispenses once for all with the bother of carrying an Ignition key for his Ford—that in this lock lies absolute safety from theft—the sale is made.

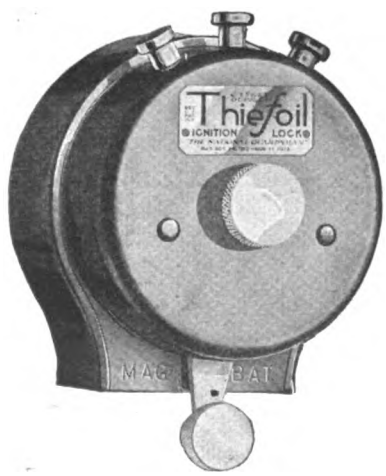
Hundreds of dealers in every section of the country rank **Thiefoil Ignition Locks** the easiest selling accessory they have ever handled.

THOUSANDS of Ford owners boost their merits—continually send new customers to the dealer who handles them.

Every assistance is offered the dealer who handles **Thiefoil Ignition Locks.** Signs, circulars, window displays, and other proven business getters are furnished absolutely free.

If you haven't already taken advantage of our offer—don't delay longer. Someone is going to sell nearly every Ford owner in your territory—the opportunity is yours. Write us today.

For Ford Cars Only Price $3.50



Easily Attached By Anyone

THE CASKEY-DUPREE MFG. CO.

MARIETTA, OHIO

Thiefoil Ignition Locks are sold by all Jobbers

When writing advertisers please mention Motor World—It identifies you

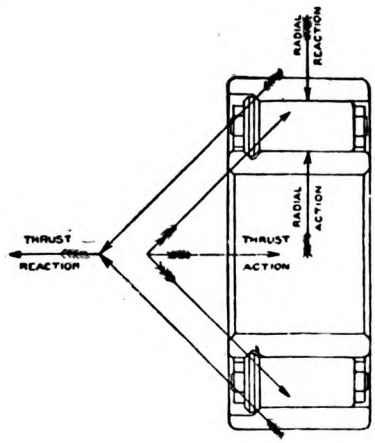
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BOWER SAVES POWER

A Separate Surface for Every Kind of Thrust

Bower Bearings are designed and constructed to minimize wear, to reduce care and attention to the simple act of keeping them lubricated and to absolutely eliminate the necessity of any adjustment.

The straight roller carries the vertical load and the flanged head takes care of the end thrust. It is because of this division of the work and because the rollers are self-aligning that Bower Bearings will be the last part of **any** car to wear out.

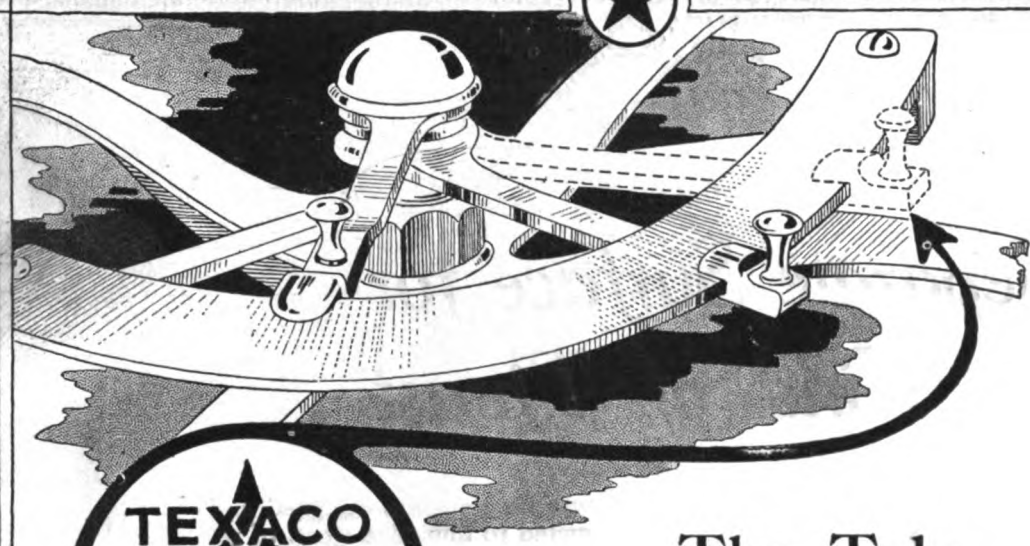


BOWER

ROLLER BEARING CO.

Detroit Michigan

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TEXACO

REG. U.S. PAT. OFF.

The Tale The Throttle Tells

THE throttle of your car tells an interesting tale to those who will listen—a tale of power developed, of gasoline and oil consumed.

You know that when a motor is running at its best the throttle need not be advanced so far to obtain a given speed as when the motor is not quite up to par. This means that it takes less gasoline in one case than in the other to go a given distance.

Try this simple test—mark lightly on the sector the point to which the "gas lever" must be advanced to obtain a speed of twenty miles an hour on a level road with the motor oil you are now using. Then drive over the same road at the same speed after having substituted for the old oil

TEXACO MOTOR OIL

Unless your car is one of the exceptions which help to prove all rules you will find that the lever does not reach the mark previously made. What does this show? Simply, that with Texaco Motor Oil, you are getting more power and using less gasoline.

Why does Texaco Motor Oil produce this result? For several reasons.

Texaco Motor Oil is a southern oil with an asphaltic base. It is admitted by the most eminent authorities that the hydrocarbons composing the asphaltic base oils *cannot* form hard carbon.

Texaco Motor Oil stands up well, maintains its body and lubricating qualities in use because it gives a good seal to the piston and rings and prevents leakage of gasoline into the crank case.

Because of these facts Texaco Motor Oil enables a motor to run at its highest point of efficiency, enables the gasoline to deliver its maximum power, and as a result gives high mileage.

You can judge a motor oil very fairly by its color. Compare Texaco with others. Note its clear, clean color.

When you buy motor oil buy Texaco. The best way, the safest way, is in 1 or 5 gallon cans.

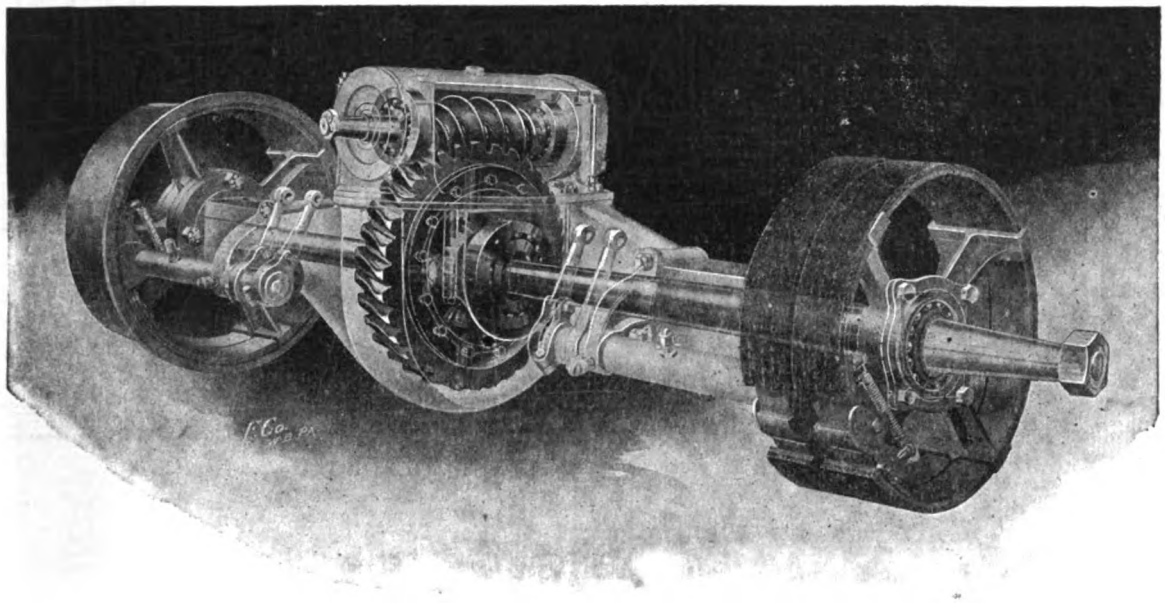
TEXACO

THE TEXAS COMPANY

17 Battery Place New York



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SHELDON

Semi-Floating Worm Gear Axles Are SOUND Axles

SOUND in design because they are simple.

SOUND in construction because of the high quality of their materials.

SOUND in performance because they are built to stand up under the rack and grind of heavy duty truck service.

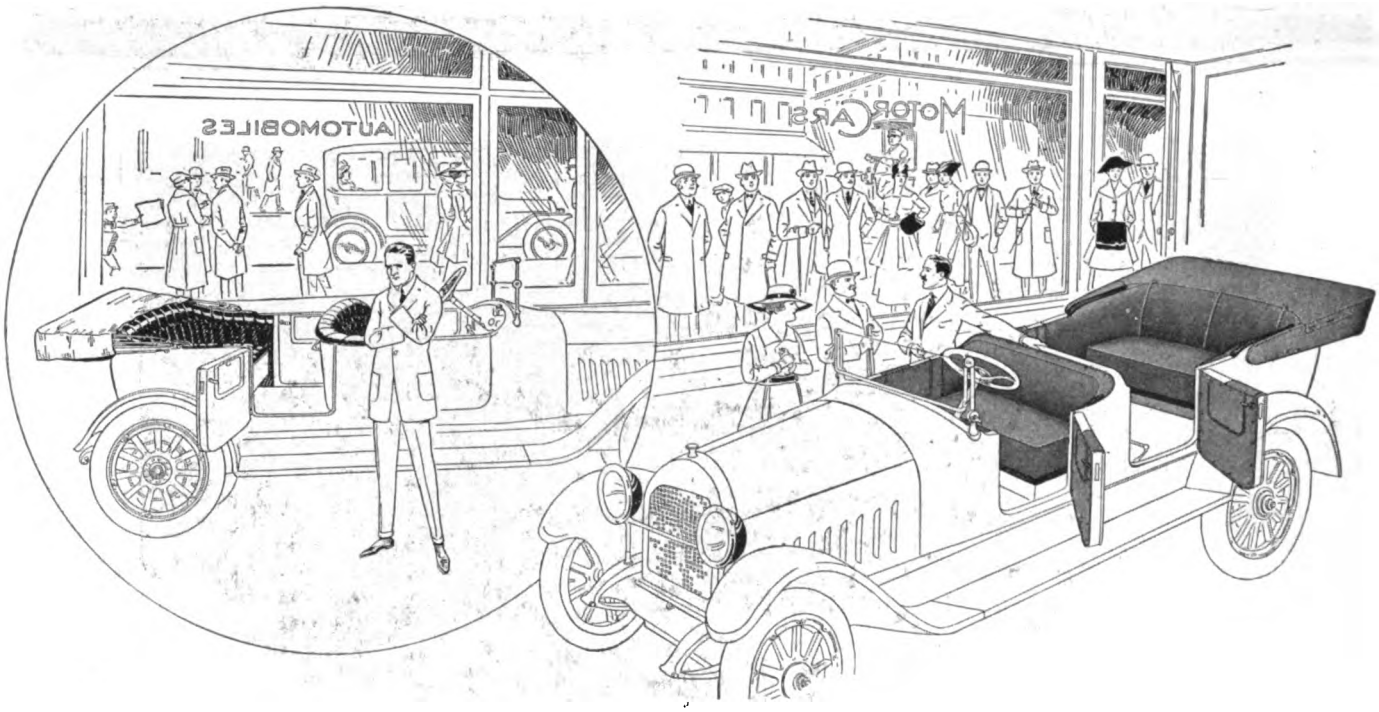
"The highest priced axles in the world, and worth all they cost."

Sheldon Axle and Spring Company

Wilkes-Barre, Pa.

WINNER OF GOLD MEDAL AT PANAMA-PACIFIC INTERNATIONAL EXPOSITION

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Which Store is Yours?

IS your place of business a place to which people are attracted, or is it only a place from which your salesmen go out to drum up prospects? Do buyers come to you, or do you have to go out after them? Is yours a salesroom or only a wareroom?

To attract public interest you must make your cars *look* more pleasing than the ordinary run. Dress them up before you invite "company" to visit them. Give them distinction, class, style; put them on dress parade; apparel them for a fashion show with

WARNER AUTO UPHOLSTERY COVERS

FIT LIKE A GLOVE

DUST-PROOF WEAR-PROOF

Take two cars of the same make and model. Equip one of them with Warner Covers. Leave the other with the upholstery exposed. Stand them side by side on your floor. The crowd will center its attention on the car with the Warner Covers. Display this car in your window. It will attract the attention from your competitor's display next door.

Warner Auto Upholstery Covers are the last word in luxury, beauty and service. The materials of which they are made surpass in quality and design. The cut, the fit, the tailor-made shapeliness, the manner in which all wearing seams are reinforced, the neatness of the fasteners, the very evident wearing quality,—all the essentials of good upholstery covers are accentuated in those of the Warner make.

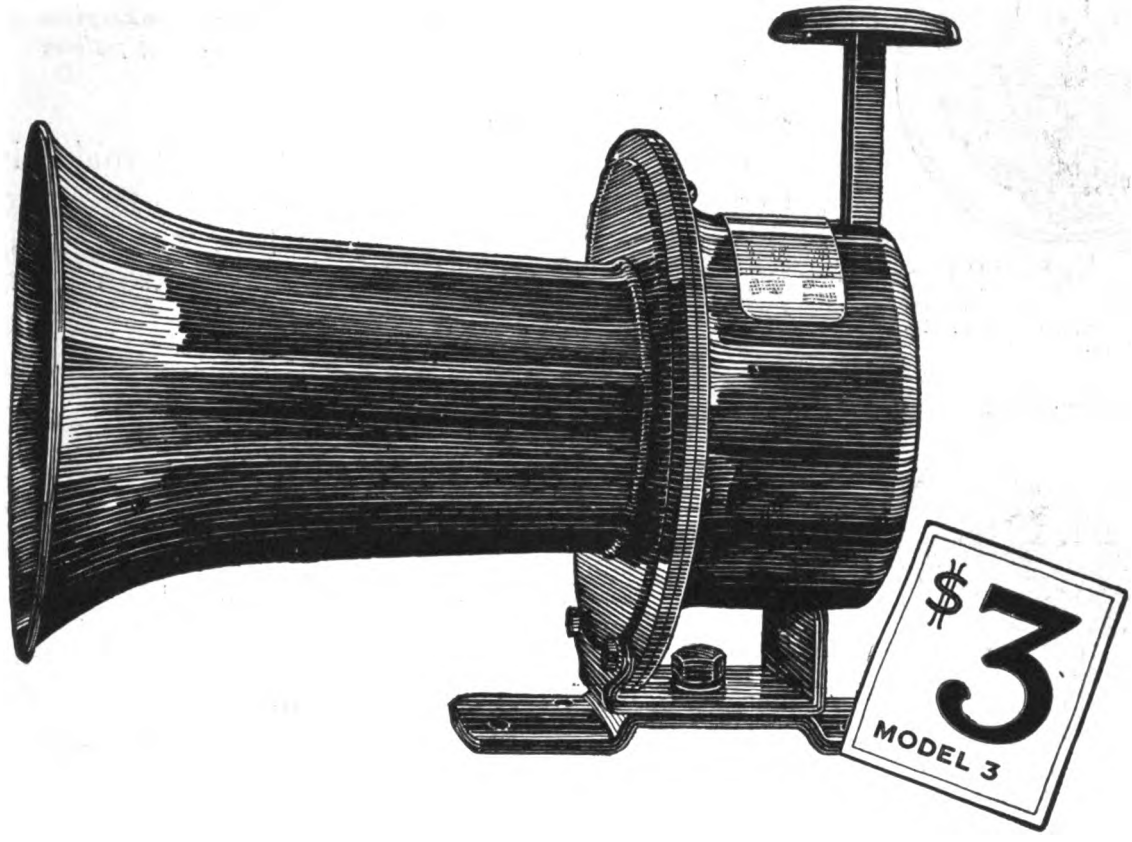
Write for our catalog and price-list. Let us equip the cars on your floor and your demonstrators. Note the increased value of your talking points.

THE WARNER AUTO TOP CO.

1640-1644 Central Avenue - - - - - Cincinnati, Ohio

Established 30 Years

Digitized by Google



925 Miles An Hour

The Speed of the Fastest Horn

You want a horn that acts instantly. The Long Horn shoots out a warning signal you can't mistake, at the astonishing speed of 925 miles an hour.

Always warns; never offends

The instant you *push down* the easy-working plunger, you get the full force of the characteristic GR-R-R-R that warns but does not offend.

This speed means everything to you in an emergency. The Long Horn's superior speed is due to its patented mechanism, invented by G. F. Long.

A horn of quality

The G. Piel Company, pioneers in the manufacture of hand-operated warning signals, guarantee the quality and durability of the Long Horn.

Never out of order

The simple, strong mechanism of the Long Horn is never out of order. You can always rely on it.

The new Long Horn—Model 3—sells for $3.

Write today for full information

Sales Department
EDWARD A. CASSIDY CO., Inc.
580 Foster Bldg., Madison Ave. & 40th St., NewYork

Manufacturers
THE G. PIEL CO., Inc.
Long Island City, N. Y.

LONG HORN

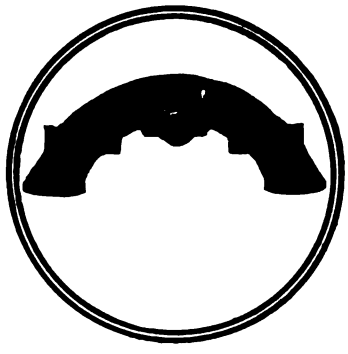
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This engine has individual valve-cams—giving a firing order directly across from one bloc to the other—two impulses on same elbow. No torque, no twist.



Overhead valves without cages; detachable cylinder-head. Greatly increased power. Valve-adjustment a 10-minute job.



Intake mainfold in a jacket of water at outlet temperature. Gas kept at a constant temperature that insures quick vaporizing.



Completely-machined, cylindrical combustion chambers — no pockets or roughnesses. Pistons over-travel in counterboring, preventing carbon on cylinder barrels. Rapid and complete combustion — maximum power and flexibility.

Where All of 'em Count

The strong points of the Ferro V-Type Engine are strong points—not just talking points

And the Engine Proves It!

Performance records from all over make it plain that the advantages of this Ferro V-Type aren't just theoretical, by any means. Here, for example, is Mr. W. E. Mallory, President of the Jackson Motor Car Co., of Missouri, saying:

Three out of forty

"In the automobile dealers' endurance run out of Kansas City, between 700 and 800 miles, we went through with a perfect score. About 40 cars were entered, and three made perfect. The engine never failed to work perfectly at all times during the entire trip."

Not the least trouble

"Mr. Troup, one of our traveling representatives, has driven eight or ten thousand miles and has not had the least trouble."

Everybody's happy

"We are pleased to say that none of our customers owning the new Wolverine Eight, equipped with Ferro V-Type Engines, has anything but good to say of them."

Why? Look at the pictures

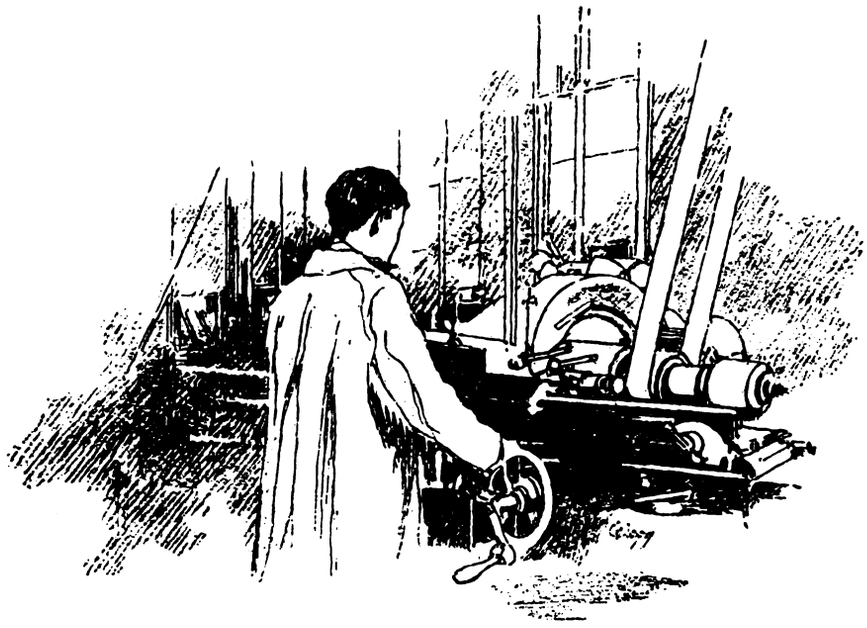
They show four—not all—of the strong points of the engine—but you can get the whole story from a well illustrated booklet that we'll be glad to send you for the asking.

Here's something big. Get *all* the facts.

THE FERRO MACHINE & FOUNDRY COMPANY
298 Hubbard Avenue Cleveland, O.

FERRO MOTORS
Reg. U.S. Pat. Off.

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GRINDING TRANSMISSION GEARS AND SHAFTS

BROWN-LIPE

INSTEAD OF MERELY ASSEMBLING the gear blanks just as they come from the forge, all gear faces are first ground absolutely parallel before shaping, so that the gear teeth cannot fail to be cut exactly at right angles to the face of the gear.

THIS PRELIMINARY MACHINE WORK offers only one illustration of the many little refinements of manufacturing that help to make the Brown-Lipe products so markedly superior.

IT IS AN INDICATION of that "infinite capacity for taking pains" which is said to make possible the masterpieces of Genius.

BROWN-LIPE GEAR CO.

SYRACUSE Transmissions NEW YORK

BROWN-LIPE CHAPIN CO.

Differentials

New York: Thos. J. Wetzel, 29 W. 42d Street.
San Francisco: A. H. Coates, 444 Market Street.
Foreign Agent: Benjamin Whittaker, 2 Norfolk Street, Strand, London, W. C.

Digitized by Google

WOODWORTH
Easyon Chains

On or Off in a moment

Grip like a mudhook

Ride like a bare tire

Every Car Owner in the United States

—either has or needs a set of Easyon chains.

You can put them on in a jiffy without having to wallow around in mud, snow or sand.

You can put them on when you are *in* trouble—you do not have to foresee the trouble.

You can carry them *always*—they take up scarcely any room, and are light and handy.

You can buy them at a low price—and you only have to buy them once.

They will not scratch your wheels or bruise your tires, being specially guarded against doing so. They are strong, well made, snug fitting.

DEALERS sell these fast.

ONLY THREE SIZES TO BE CARRIED, fitting all cars.

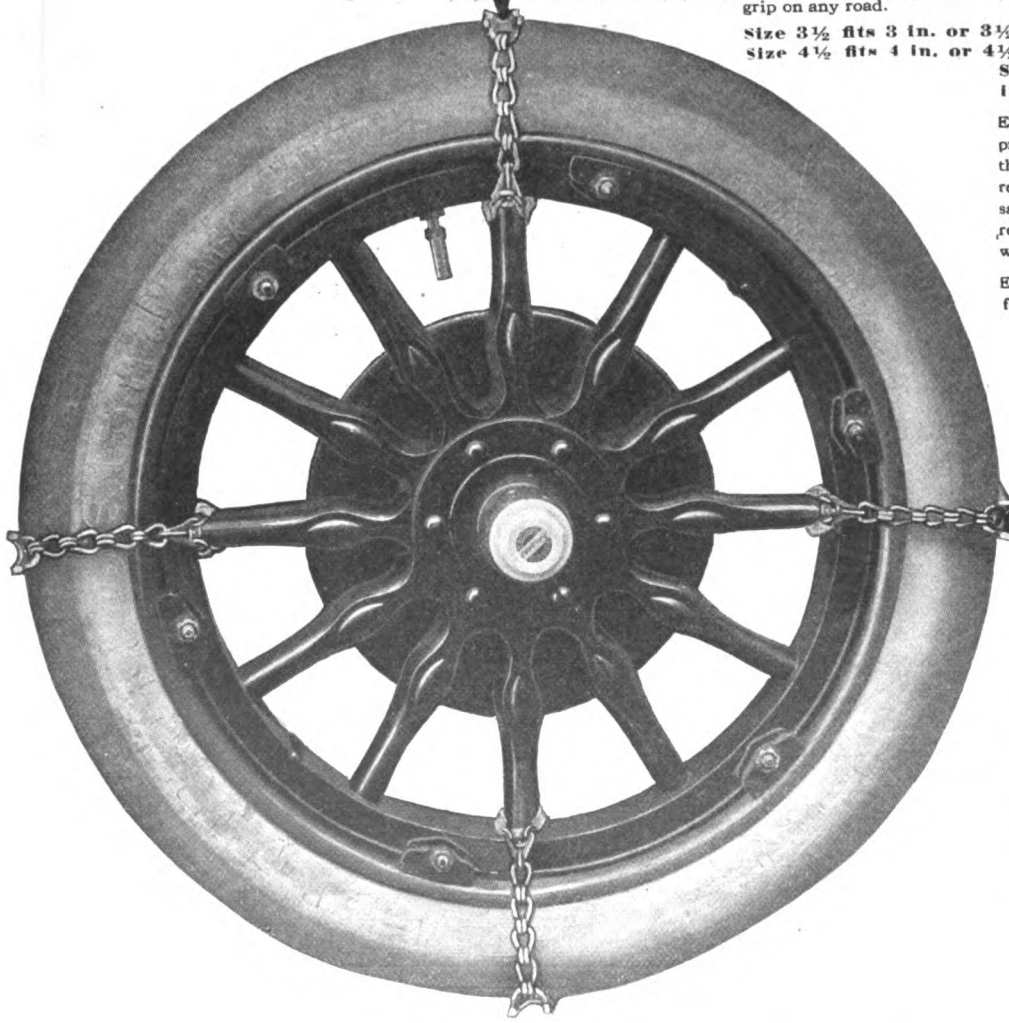
Small investment—good profits—quick returns.

Packed in a set of eight in a bag, four for each rear wheel, enough to give a good grip on any road.

Size 3½ fits 3 in. or 3½ in. tires. $3.00 per set
Size 4½ fits 4 in. or 4½ in. tires. $4.00 per set
Size 5½ fits 5 in. or 5½ in. tires. $5.00 per set

EASYON CHAINS will be sent prepaid on approval to any part of the United States or Canada on receipt of price. If you are not satisfied after examining you may return them at our expense and we will refund the full amount paid.

EASYON CHAINS are also made for solid tires both single and dual.



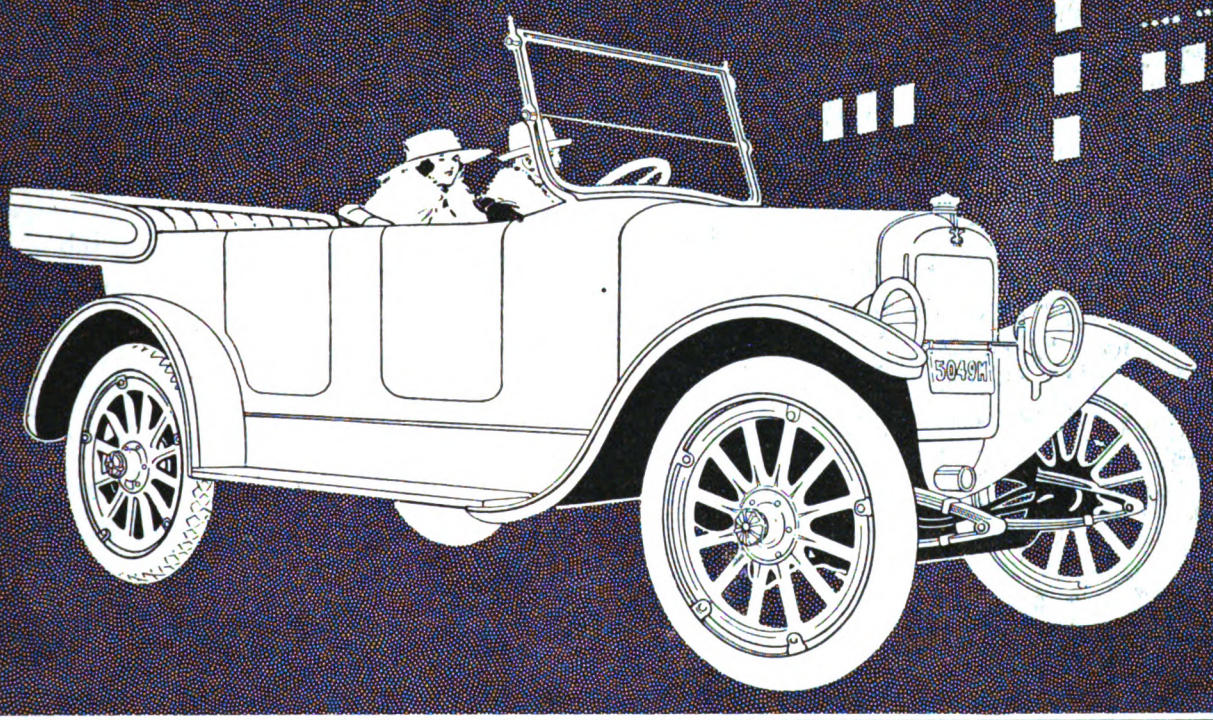
Woodworth Manufacturing Corporation

Niagara Falls, N. Y.

Digitized by Google

BRISCOE $685

The Car With The Half Million Dollar Motor FULLY EQUIPPED



THE BRISCOE OPPORTUNITY

Sales Success

Between August and the end of December our Dallas dealer disposed of 400 cars. The Chicago dealer sold $10,000 worth in a single day. The new Briscoe, with its larger motor, finer finish and extra equipment, should mean a great 1917 sales success in your territory.

Profit

Every sale represents a more profitable turnover to the Briscoe dealer. Let us make this absolutely clear to you. Ten great factories insure deliveries. Further, our Statistical Department will furnish you all the facts about what your competitors are doing. Your territory may be open. Wire now for reservation.

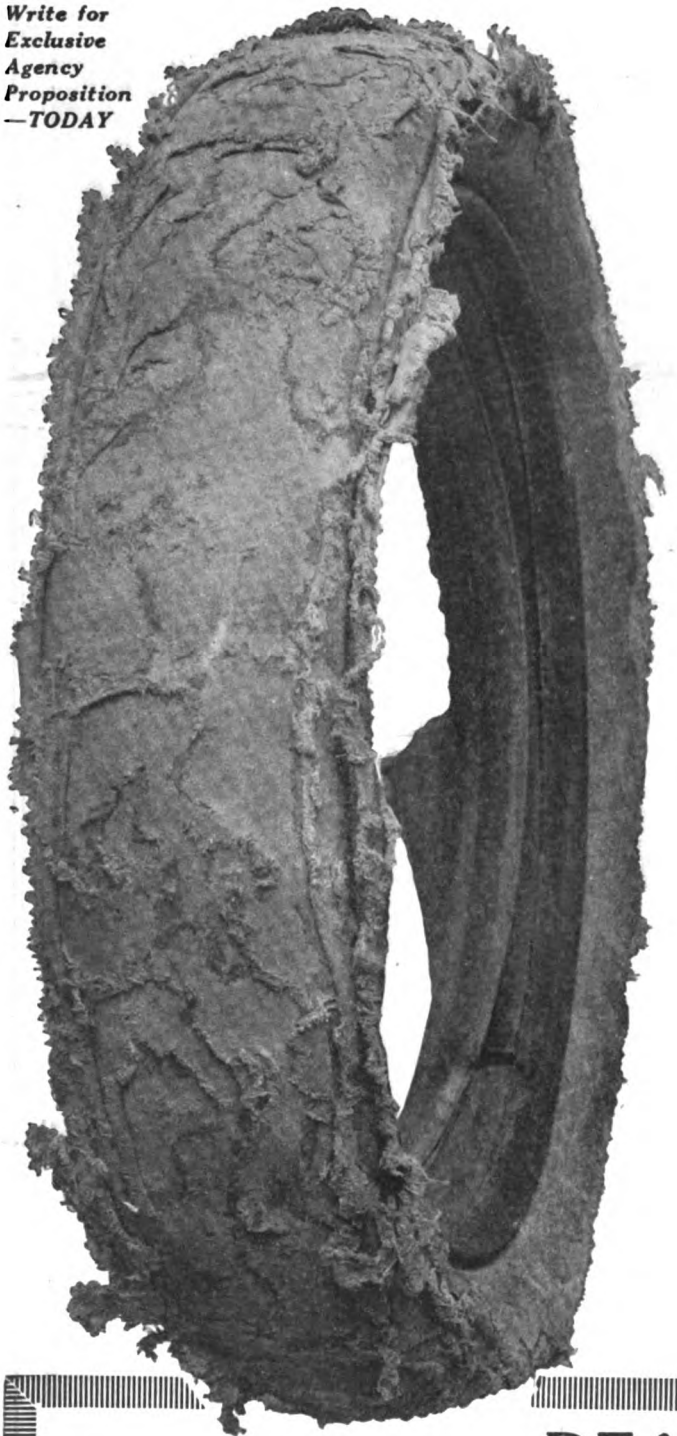
Five Passenger Touring Car	$685	Coachaire	$810
Four Passenger Roadster	$685	Delivery Car (Canopy Top Body)	$700

BRISCOE MOTOR CORPORATION

Department 30 JACKSON, MICHIGAN

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Write for Exclusive Agency Proposition —TODAY



TIRE equipped with MAXOTIRE which has run thousands of miles after it ordinarily would have been thrown away. This extra mileage is just like money in the bank. The MAXOTIRE is still as good as new.

DEALERS

Your customers can get the *full wear* from their tires by using

MAXOTIRES

There is no other accessory that sells so easily and that gives better satisfaction. Since the price of tires has advanced, every auto owner is looking for something to make his tires last. There are bigger profits in selling MAXOTIRES than new tires.

MAXOTIRES are sold only to one dealer in each town. All inquiries whether from other dealers or consumers are referred to him.

MAXOTIRES are not sold thru jobbers or cut-rate supply houses. The consumer can get them only from our agency in each town.

Our advertising brings the customers to you. There is nothing else like the MAXOTIRE on the market.

Write for free catalog containing full information. Make us show you why you should sell MAXOTIRES.

K & W RUBBER CO. 3rd Street Ashland, Ohio

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A Wonderful Combination

We are confining our entire production to a single eight-cylinder chassis.

We know it to be most remarkable of all the many Cole achievements.

It is the largest Eight built—but relatively the lightest. Think for a minute what that means.

Here is a car that rides with the ease of a bird on the wing.

Its motor has the quick response, the noiseless action and the tremendous vitality possible only in an Eight.

Its body has the room and the luxurious comfort that size alone can give.

Yet the light weight of the Cole Eight safeguards your pocketbook. It gives you more miles per gallon of gas than most sixes—more than some fours.

In short, the Cole Eight couples the known advantages of size and power with those of lightness and economy.

No wonder the Cole Eight is a phenomenal success!

No wonder we are producing three times as many cars as we did at this time last yea. —and are building nothing but Cole Eights!

Cole Motor Car Company
Indianapolis, U. S. A.

COLE 8

Prices

Seven Passenger Cole-Springfield Toursedan	$2295
Four Passenger Cole-Springfield Tourcoupé	$2295
Seven Passenger Cole Eight Touring Car	$1695
Four Passenger Cole Eight Roadster	$1695

Prices f. o. b. factory

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EUREKA RIM COMPRESSOR

9,456 Sold at the N.Y. and Chicago Shows

to people who saw the Eureka Rim Compressor demonstrated. They did not come to buy—they were sold by seeing the Compressor in operation. This number does not represent a fifth of the people who were interested, and will buy Eureka when they see it on sale, or when they need a compressor.

The success of the *Eureka Rim Compressor* is based on the quick, effective way it does the job, and on its mechanical excellence. It will remove and replace a tire in 12 seconds. Its long handle and eccentric bearing gives the tool a tremendous leverage which enables you to handle any sized rim with comparative ease.

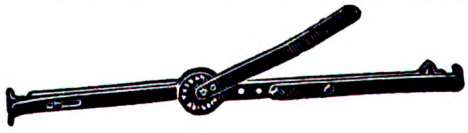
The fact that the lever locks when in alignment and cannot slip, holding the rim in a collapsed position, permits you to use both hands to remove the tire. The specially devised ends, which operate on the rim, are put in place directly, both in removing and replacing tires, without adjusting clamps or screws.

You cannot damage the rim or the casing in any way. Nor can you pinch your tube, or spring your rim out of shape with the Eureka Rim Compressor.

Fits all sizes of transversely split rims. Made of channel steel, well bolted and riveted. Every part guaranteed. Cannot get out of order.

Parcel Post Weight, 6 lbs. Dealers or Direct.

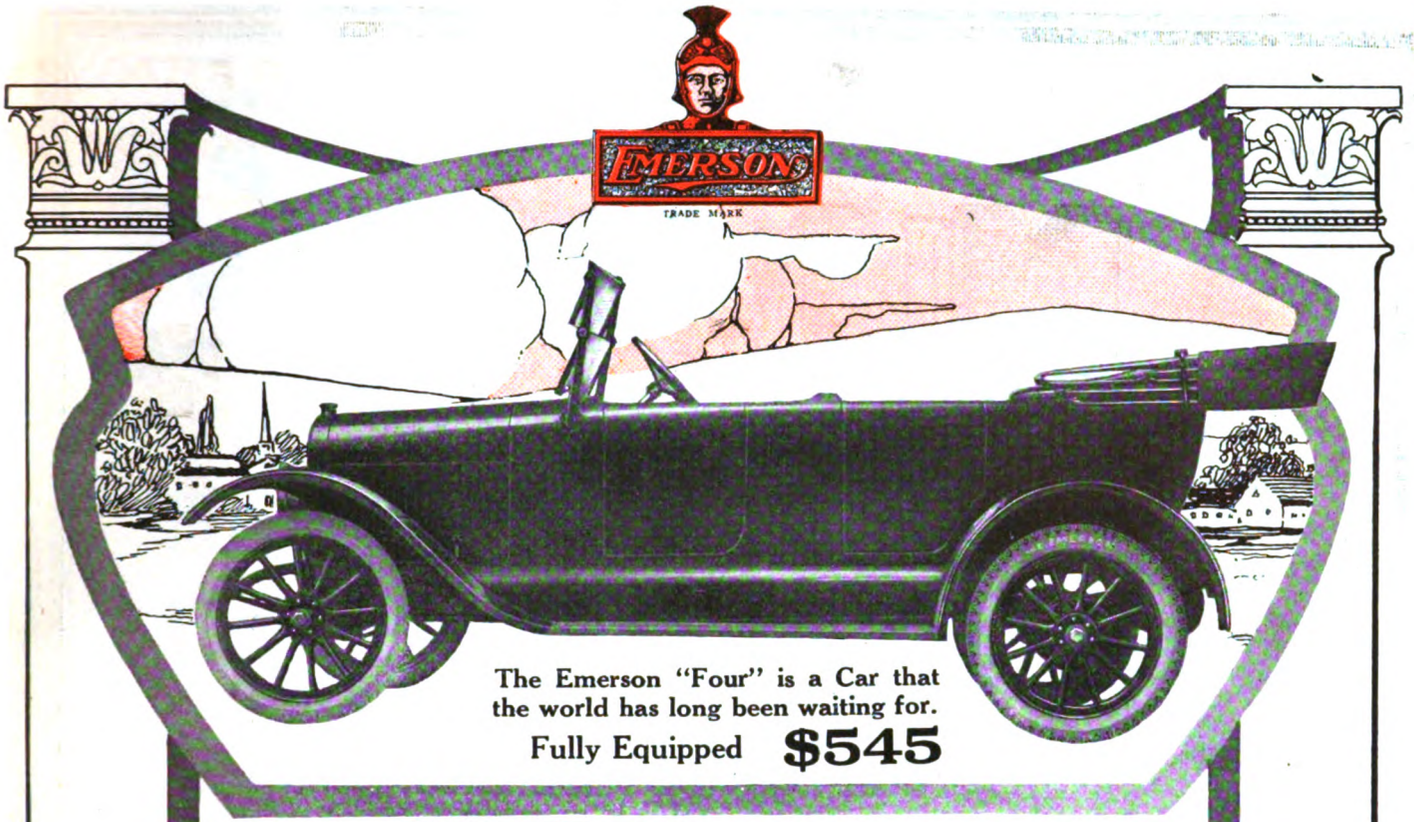
EUREKA RIM COMPRESSOR



Eureka Rim Compressor Incorporated
Addison New York

Price $3

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The Emerson "Four" is a Car that the world has long been waiting for.

Fully Equipped **$545**

The EMERSON 4

The Lowest-Priced 5-Passenger 110-inch Wheelbase Car in the World

—at the same time Comfortable, Good-Looking and Soundly Constructed.

The EMERSON "FOUR" is a Car that the world has long been waiting for. It fills the gap where the demand is the heaviest. A good looking Car that will *"make good"* for little money.

We will be pleased to hear from responsible dealers.

THE EMERSON Motors Company Inc.,
KINGSTON, N. Y.



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Few manufacturers meet so completely the demands for both pleasure and commercial vehicles as the Nash Motors Company. Nash dealers not only reap profits from the sales of Jeffery four and six cylinder motor cars, but at the same time secure a generous portion of the truck business in their respective territories.

Jeffery Sixes

Seven Passenger Touring Car,	$1465
Seven Passenger Sedan . .	1630
Roadster	1435

Jeffery Fours

Seven Passenger Touring Car,	$1095
Seven Passenger Sedan . .	1260

Jeffery Trucks

Rapid Service Wagon . .	$ 965
All-Purpose Truck . . .	1465
The Jeffery Quad	2850

THE NASH MOTORS COMPANY. KENOSHA.WIS.

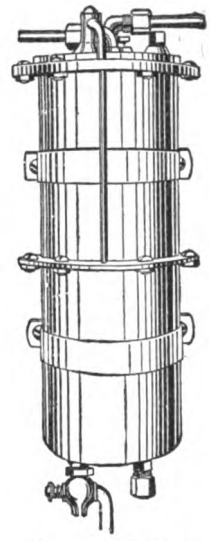
Manufacturers of Jeffery Cars and Trucks, including the Jeffery Quad

Digitized by Google

SPARTON QUALITY

The SPARTON Gasoline Vacuum System

You know what this sort of a system is supposed to do. Sparton Quality applied to design and construction insures efficient, reliable performance. Evolved through most exhaustive tests on all types of motors, under the most severe and the most rigorous conditions, the Sparton Gasoline Vacuum System is offered as a perfected device.



Sparton Gasoline Vacuum System

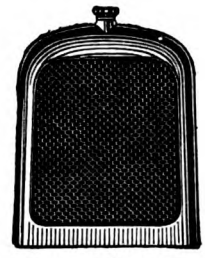
SPARTON Motorhorns Bespeak SPARTON Quality

To produce the motorhorn that has been adopted as standard equipment by the makers of such cars as these:

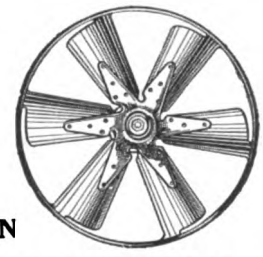
Packard	White	Cole	Haynes	Rauch & Lang
Hudson	Winton	Peerless	Briscoe	and
Studebaker	Marmon	Jordan	Marion-Handley	25 others
Chalmers	Stutz	Kissel	Jackson	

is evidence that the House of Sparton is actuated by a determination to excel.

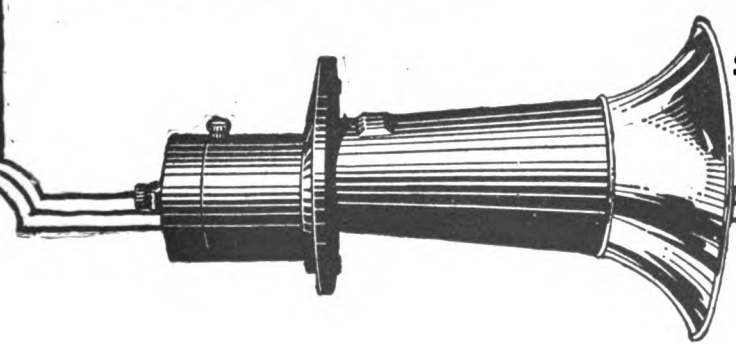
Sparton Radiators and Radiator Fans are other well-known examples of Sparton Quality.



Sparton Honeycomb Radiator



Sparton Radiator Fan



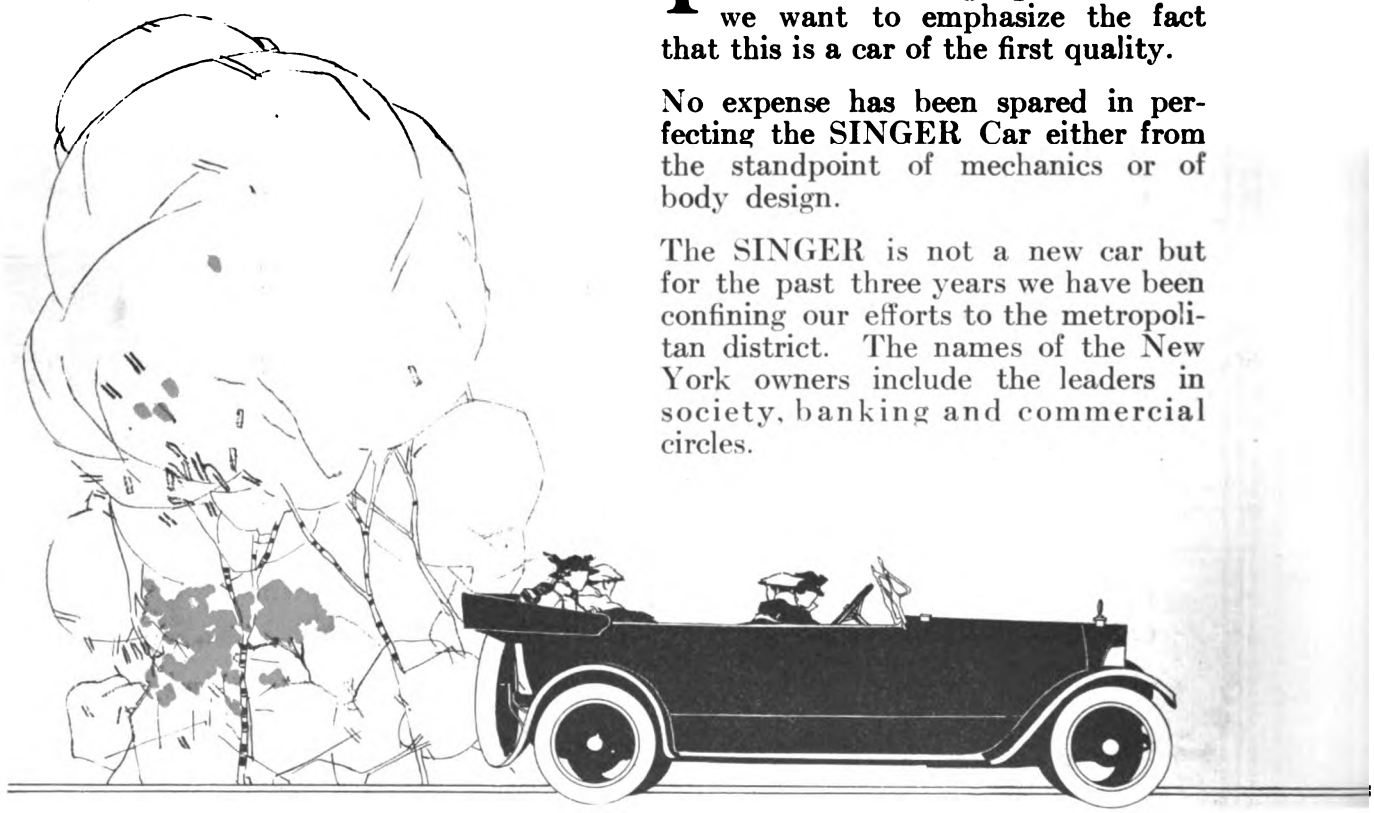
THE SPARKS-WITHINGTON COMPANY
JACKSON, MICH.

(12)

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Singer

An Opportunity for An Exclusive Agency



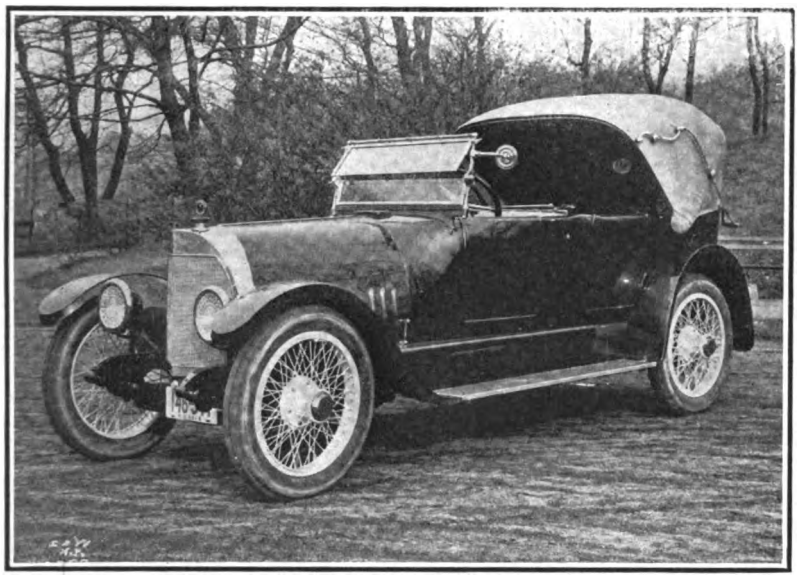
IN offering exclusive SINGER agencies to a few high grade dealers we want to emphasize the fact that this is a car of the first quality.

No expense has been spared in perfecting the SINGER Car either from the standpoint of mechanics or of body design.

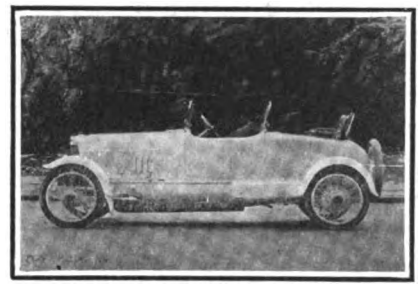
The SINGER is not a new car but for the past three years we have been confining our efforts to the metropolitan district. The names of the New York owners include the leaders in society, banking and commercial circles.

BUILT IN

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7-Passenger Touring Car



4-Passenger Runabout

The Singer Gives Renewed Significance to Luxury and Individuality

THE chassis is constructed to secure maximum balance and harmony. It is designed with profound engineering skill and built by expert mechanics. Each part has been carefully selected for its effectiveness and strength.

The six cylinder motor is highly refined and extremely powerful. Springs of extra length, with compound cantilever suspension in the rear, give the car exceptional riding qualities.

The chassis sells for $3000. Roadsters and touring bodies $3800. Limousines and and Broughams at $4750. Landaulets at $4850. Special bodies are built and equipped to order.

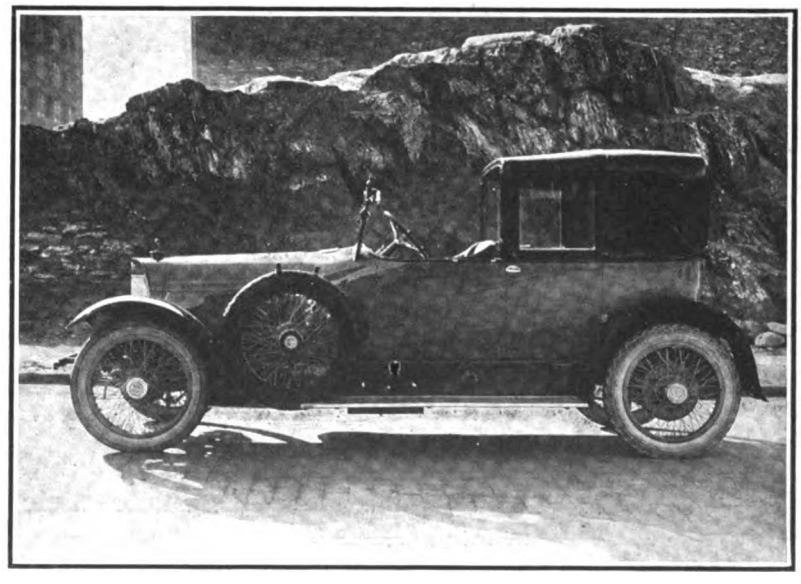
In every community there are possible buyers for a car of the exclusive character of the Singer. An agency for this car is a valuable business opportunity. We are extremely careful to whom we entrust the the reputation of the Singer car.

The SINGER MOTOR COMPANY desires to communicate with suitable dealers, men who have the experience and the facilities to deal with exclusive customers.

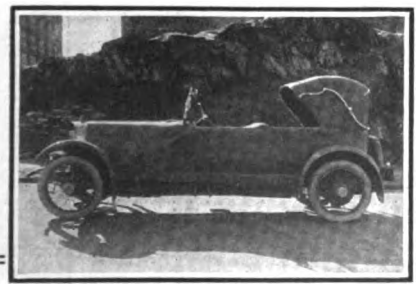
Singer Motor Company

64th Street and West End Avenue
New York, N. Y.

Collapsible Brougham



4-Passenger Sporting Type



NEW YORK CITY

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Fair List Prices — Fair Treatment

GOODRICH

SILVERTOWN CORD TIRES SAFETY TREAD FABRIC

AND THE ONE-PRICE SALE

WHEN a tire customer walks into your store, it is worth much to you to know that all you need do is to hand him the tire, and he buys it without hesitation because he has a deep-rooted confidence that he is getting the *best* tire at the *lowest* price.

It is worth much in time, argument, and self respect *saved*, and many a dollar *earned* in quick sales and the satisfaction that brings the customer back to you for his NEXT tires.

That is the asset, which produces big yearly profits, dealers acquire with Goodrich tires.

The Goodrich Dealer the One-Price Dealer

Experienced tire buyers have *learned* to stop at the FIRST Goodrich sign because they know THERE is a ONE-PRICE dealer doing business on the Goodrich Fair List.

The Goodrich sign vouches for the steadfast high quality, the old and trusted B. F. Goodrich Company makes no effort to cheapen.

Because tire buyers, feeling *safe* with ANY Goodrich dealer, buy at the NEAREST Goodrich store—buy without haggling, and seldom leave without buying—Goodrich dealers waste no time in bargaining, but give it all to attention of the customer.

Therefore, mutual *good faith* and *good feeling* between dealer and customer make their home at the sign of Goodrich.

Where You See This Sign Goodrich Tires are Stocked

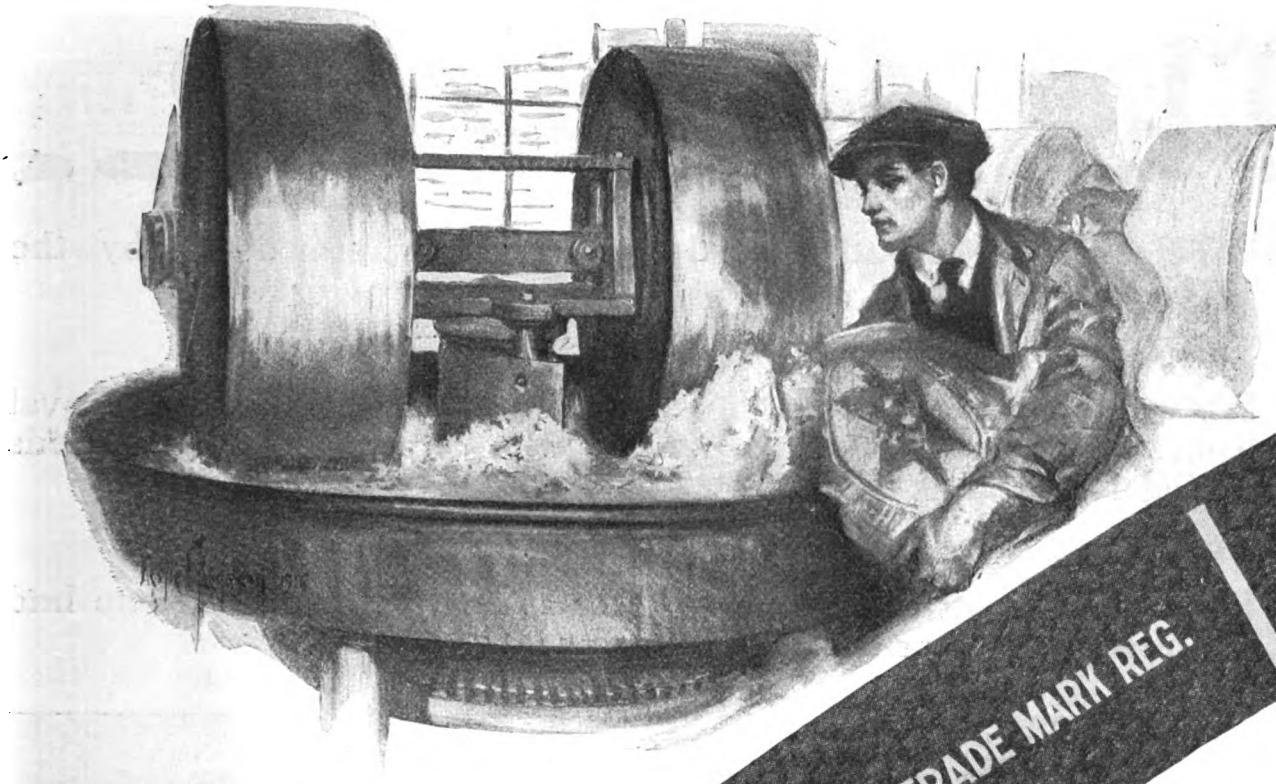
GOODRICH TRADE MARK TIRES

Ask Your Dealer for Them

The B. F. Goodrich Co., *Akron, Ohio*

"Best in the Long Run"

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Crushing Asbestos Rock

MULTIBESTOS TRADE MARK REG.

The first step in the manufacture of Multibestos is the careful selection of long fibre asbestos. An extensive search of the world's markets has taught us that the mines of Canada offer the only grade of this rock suitable for a brake lining of such high quality.

After the selection is made and the shipments are passed upon by our experts the asbestos is delivered to our Walpole factory in carload quantities.

First comes the crushing process in which the crude material is pressed under heavy steel rollers. This crushing transforms the rock into a fluffy mass and from this mass the yarn is spun which forms the basis of the multiple weave of Multibestos.

The spinning process as well as the weaving and other methods of treatment will be set forth in subsequent advertisements.

The idea of this series will be to acquaint the trade with each step in the most thorough manufacturing policy known to the brake lining industry — a policy that is the big reason back of Multibestos supremacy.

STANDARD WOVEN FABRIC COMPANY
WALPOLE, MASS.

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The ANSWER--

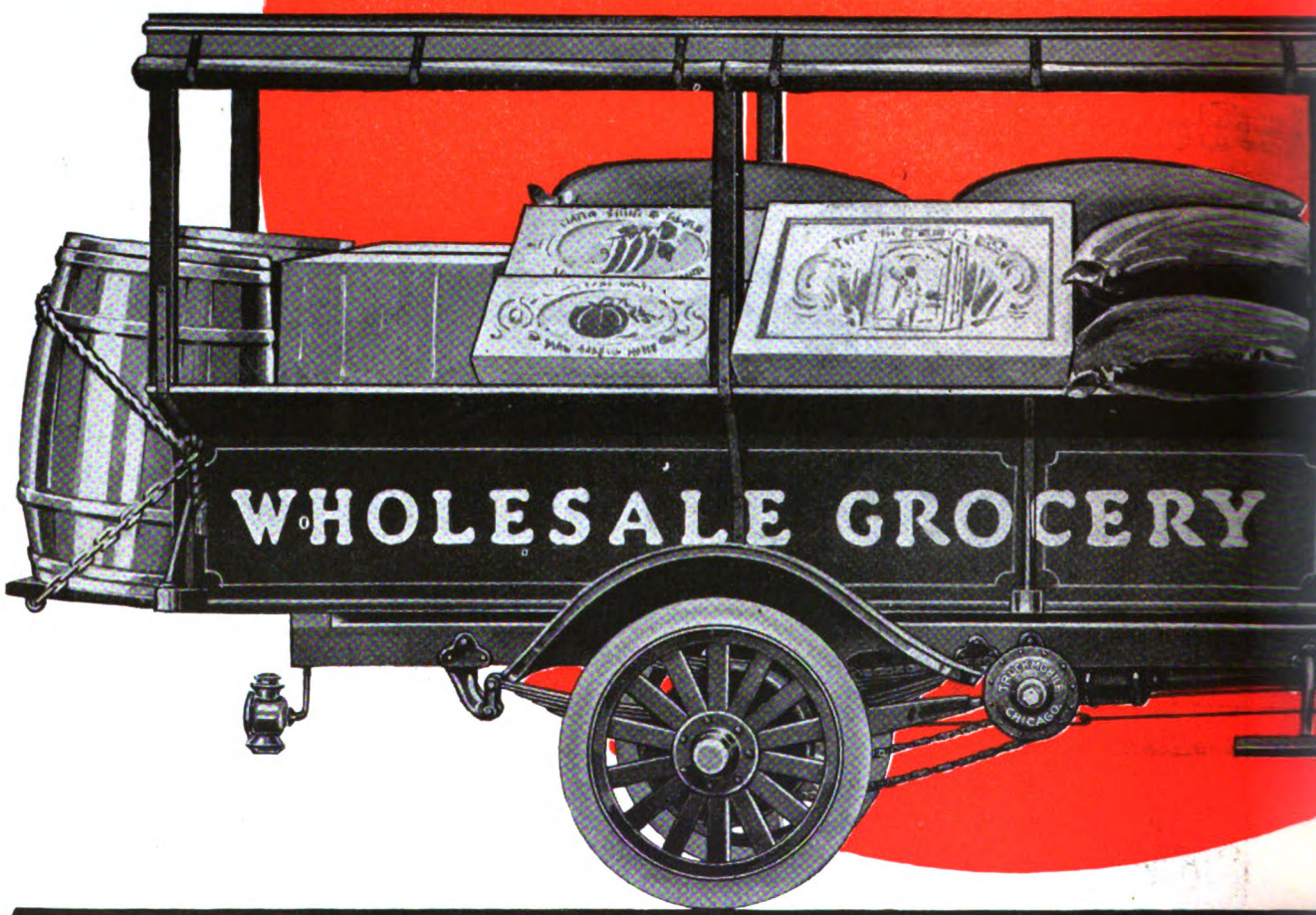
Popular interest had already been strongly aroused by the TRUCKMOBILE.

This fact we knew.

We really underestimated, however, the flood of positive approval from dealers and prospective buyers who came in by the hundreds during Auto Show Week.

At first they were critical. And some were skeptical.

But every one of them knew just what he wanted. Each one had his own fixed ideas on truck attachments.



TRUCK

Digitized by Google

Individually and collectively they had made the rounds and looked at each of the 57 varieties exhibited.

Then when they saw the real truck attachment—the TRUCKMOBILE—some of them were surprised they had overlooked it heretofore.

But all of them were delighted for they saw at a glance the answer to all their ideas and even more.

Each and every one of them appreciated and approved of the ten big points of superiority.

You will be convinced just as easily if you will look over the TRUCKMOBILE itself or let us send you our literature.



"Biggest of them all!"

Here Is Why—

1—The TRUCKMOBILE has a longer wheel base—133 inches.

2—The TRUCKMOBILE rides easier under light as well as heavy loads, due to spring construction and long wheel base.

3—Less side sway to frame and body on TRUCKMOBILE—due to method of spring attachment.

4—Wider body permitting larger body dimensions. Width 41½ inches.

5—More massive construction of carrying parts.

6—Fewer parts and fewer cares.

7—Bell sprocket that can be attached in a few moments—*keys right on to the jackshaft.*

8—Load strain on axle properly distributed because side springs are nearer wheel center than on others.

9—Requires less of dealer's time for making attachment to Ford chassis.

10—Destroys none of the used or unused parts of the Ford car.

$350

And a Ford Chassis
(Old or New)

We only allow one dealer to handle TRUCKMOBILE in a territory, but you may rest assured everybody in that territory knows about him.

If you have not heard of a dealer in your territory write at once for our proposition.

The Commercial Truckmobile Co.
E. F. KIRCHBERGER, Pres.
Dept E-2 1606 Michigan Ave.
Chicago, Ill.

MOBILE

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A Car Approved on Sight is Half Sold

That nearly everyone admires a Scripps-Booth on sight is a very good reason why Scripps-Booth dealership is profitable.

The attraction of Scripps-Booth appearance will draw prospects into your salesroom quicker than the conventional car.

And you'll find these prospects among the better class of customers—the kind that willingly pay a fair price for something that they believe is better.

You'll find them among buyers who want something out of the ordinary—to whom price is secondary to distinction.

Many of your customers, too, have desired the qualities of luxury that Scripps-Booth affords.

But these qualities of style, individuality, extraordinary comfort, have heretofore existed only among the bigger, more expensive cars.

Scripps-Booth popularity has proven that there are thousands of prospects—in every part of the country—ready to buy the one car of light weight that includes all of these qualities.

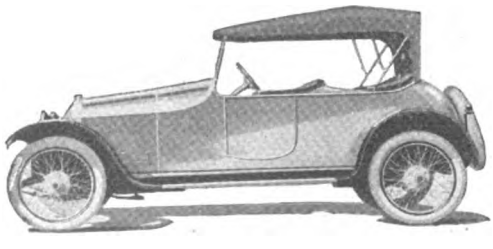
That is why the Scripps-Booth should be a valuable line for you to handle.

We have still opportunities for a few wide-awake dealers who appreciate the merits of this attractive, non-competitive proposition.

Your territory may be among them. But it will not be available long. The number of open territories is rapidly narrowing.

And you had better write or wire us today if you don't want to miss this unusual chance to make a profitable connection.

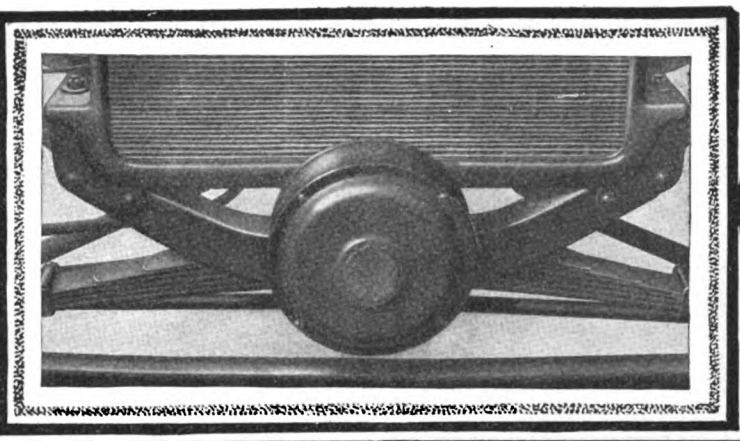
Scripps-Booth Corporation
Detroit, Mich.



Four-Cylinder Roadster	$935
Four-Cylinder Coupe	1450
Eight-Cylinder Four-Passenger	1285
Eight-Cylinder Town Car	2575

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BERNS Electric Starting & Lighting System



$55 for FORDS

Interest in the Berns starter continues to grow.

The Berns two-unit electric starting and lighting system for Ford cars is attracting Ford owners everywhere.

Every country on the globe is contributing its quota of inquiries and orders.

The reason is easily apparent.

Ford owners know what a simple, light, efficient starter means to them.

They instantly recognize the value of the compactness and the simplicity that permits the Berns system to be attached without any change in the motor.

They are enthusiastic over the fact that the Berns starter fits concentric with the motor-cranking it in the natural way—and doing away with the necessity of chains or other indirect devices.

They know what stretchy chains mean. They know what broken chains mean.

And conversely they realize what it means to have a starter that operates without chains.

The advantages of a starting system that cannot be put out of order by backfire—that *backfire simply cannot injure*—are as clear and positive as daylight.

Likewise, the merit of a device that turns the Ford motor—and maintains the torque and speed of the Berns starter is perfectly obvious.

Then the quality of the Berns appeals to them, as it will to you. We assure you that from the standpoint of materials, workmanship and design no starter at any price offers any advantages over the Berns.

And the Berns leads them all in efficiency—and price.

This is a two-unit system. You get light—a steady stream of it, powerful and brilliant—and with a minimum of current consumption.

The Berns System is shipped you complete with all wiring, battery, terminals, etc.

There is nothing extra to be purchased—and it takes only about two hours to install.

Of course the Berns will appeal to you. That is why we suggest immediate action.

First come first served. Write today.



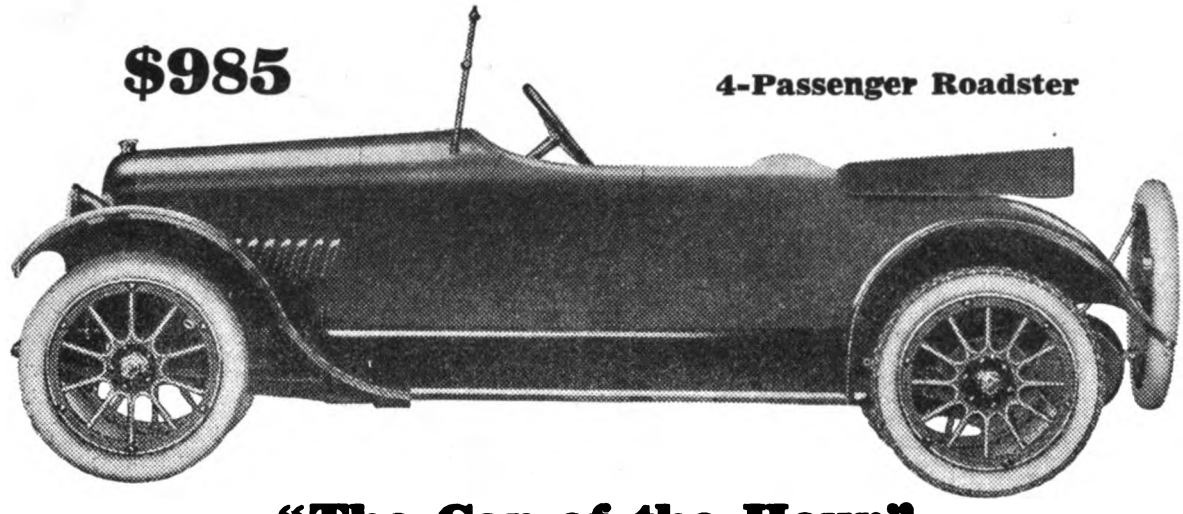
Detroit Electric Welder Co.

252 Lafayette Avenue Detroit, Mich.

Factory—Lansing, Mich.

$55 complete with all wiring, terminals, Willard 6-80 storage battery, generator, dash and dash equipment, such as two-button switch for lights and dimmers and battery indicator.

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"The Car of the Hour"

5-Passenger Touring **$985** **Elgin Six** 4-Passenger Roadster **$985**

DEALERS:

Measure the Elgin Six Against $985

Your verdict will be: "Under-priced by several hundred dollars."

—Yet we are making a legitimate profit.

Note the style, size and specifications that will enable you successfully to compete with high-priced cars in quality—and beat them in price.

Consider the Elgin velvet-acting clutch, that eliminates gear-shifting and enables this "Beauty of the Road" to be started on "high" under ordinary conditions, thus removing the last obstacle to the successful handling of a motor car by women.

Note the improved cantilever rear spring suspension, found only on the Elgin Six, that has set a new standard of motoring ease and comfort at high speed. You can safely and comfortably drive the Elgin Six at 35 to 50 miles per hour over roads so rough that the average car is limited to 15 to 25 miles per hour.

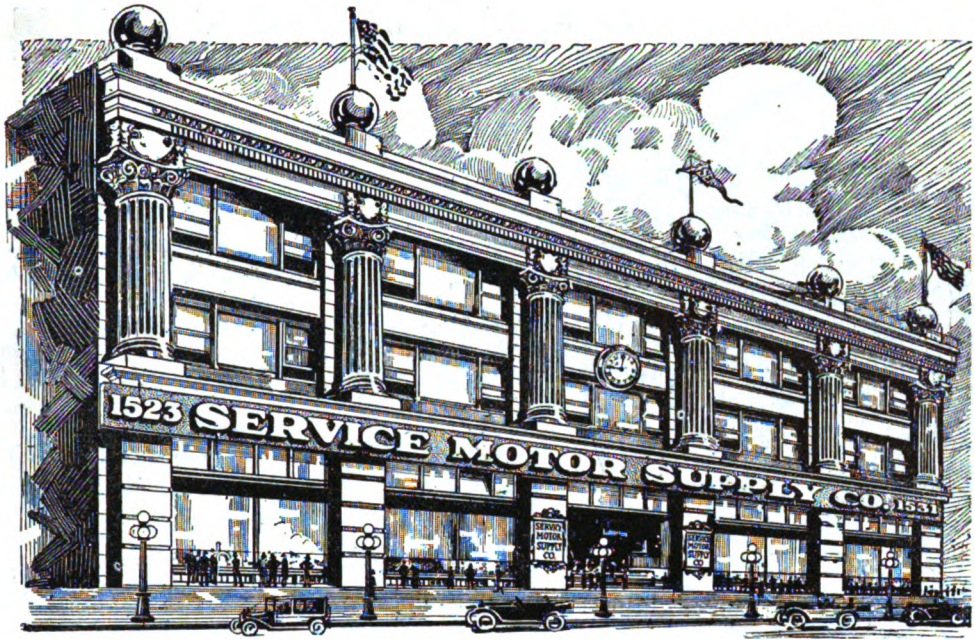
And as for style and beauty—no other car selling under $1250 has the fashionable center cowl of the high-priced European models. The beautiful yacht line design of the Elgin Six was established by a famous artist, and gives this car a distinction that sets it aside from the monotony of the common designs of average cars.

NOTE: The Elgin Six, in addition to establishing a new record of 67½ hours between Chicago and Miami, Fla., has made perfect scores and won highest economy honors in some of the most gruelling endurance and economy runs of the past year.

SPECIAL NOTICE. Our recently completed, big, modern, daylight Plant No. 2, has so increased our production that we are now entering new territory. If the Elgin Six is not now sold in your territory, better wire us for application blank and full particulars of 1917's best money making proposition for dealers.

Elgin Motor Car Corporation, Chicago, U. S. A.

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We occupy this entire building—the finest and handsomest structure in the United States devoted exclusively to wholesale automobile supplies and hardware.

Through Service We Succeed!

We are the fastest growing wholesale automobile accessory jobbing house in America—30,000 dealers know us favorably through having done business with us.

We were the first to inaugurate, and practice, on a national scale, our system of selling to merchants from our monthly catalog "SNAPS" known all over the country as "The National Bargain Directory of Automobile Supplies." Our system enables us to place before the accessory dealers of this country a *new, fresh assortment of choice merchandise every 30 days.*

By mailing a complete catalog monthly, we keep the dealer in touch with the *latest* and *best* that the market affords. We do not have to anticipate a rise in prices in quoting you, and therefore, you have the advantage of the *lowest prices curren* at any time.

We *buy* for cash and we *sell* for cash—therefore we are able, and do give you the full benefit of the *lowest prices* at which our quality of goods can be bought. We are selling millions of dollars worth of auto supplies and hardware per year—therefore we can afford to take a very small profit on each item—*the big volume makes this possible.*

This business was founded with a small capital and a big idea—the idea of SERVICE. We have taken the meaning of SERVICE in its broadest sense. And each day, each month we have found a new and still broader meaning. And now we understand that SERVICE means all things that go to make life easier and business *more profitable for the dealer we serve.*

We guarantee to ship 90% of our orders within six hours from receipt. Only orders for unusual special items are occasionally held longer. *We guarantee to return your money to you at any time* that you ask for it—and it makes no difference whether you want it back for a good reason—or for no reason at all.

Send for FREE Copy of "SNAPS"

We Sell Wholesale Only!

We only accept and fill orders from qualified dealers and garage men who buy to resell. No consumer order ever gets by our "Turn Down" department. We will not compete against our own customers and therefore *we protect the dealer absolutely.* From thousands of dealers we have earned the title of being their "Chicago Partner"—send for "SNAPS" the National Bargain Directory of Auto Supplies, be sure to use your letterhead and—

LET US BE *YOUR* "CHICAGO PARTNER"



SERVICE MOTOR SUPPLY Co. 1523-25-27-29-31 Michigan Blvd. CHICAGO. U.S.A.

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A Patch that Will *Stick* and *Stay Stuck* Is Insured with—

DUTCH BRAND



Auto Patching Cement

A satisfied customer is made with every tube or can of this cement you sell—more than satisfied with his purchase—satisfied with you and readily convinced thereafter of the merit of any DUTCH BRAND Product you recommend.

DUTCH BRAND Products in this way reflect credit on the dealer who handles them, for the only *good* dealer in the eyes of the car owner is the dealer in *good* merchandise.

If you are building business with thought of the future, stock—recommend—push DUTCH BRAND—the reliable standard line.

DUTCH BRAND Auto Patching Cement is put up in tubes and cans of different sizes for all requirements. *Stock from your jobber.* Send for catalog of complete line.

Other DUTCH BRAND Products:

2-In-1 Tread Filler, a liquid rubber, quickly closes casing bruises; *Rubber-Seal* permanently seals large cuts and gashes in casings and tubes; *Vulcanizing Cement,* for use with small portable vulcanizers, or for shop use; *Carbo-Cide,* a carbon solvent of unsurpassed merit; also *Valve Grinding Compound, Auto Top and Cushion Coating, Gasket Shellac, Radiator Seal, Varni-Brite,* an Auto Polish; *Tire Talc* and *Friction Tape.*



Look for the Dutch Girl on the Label

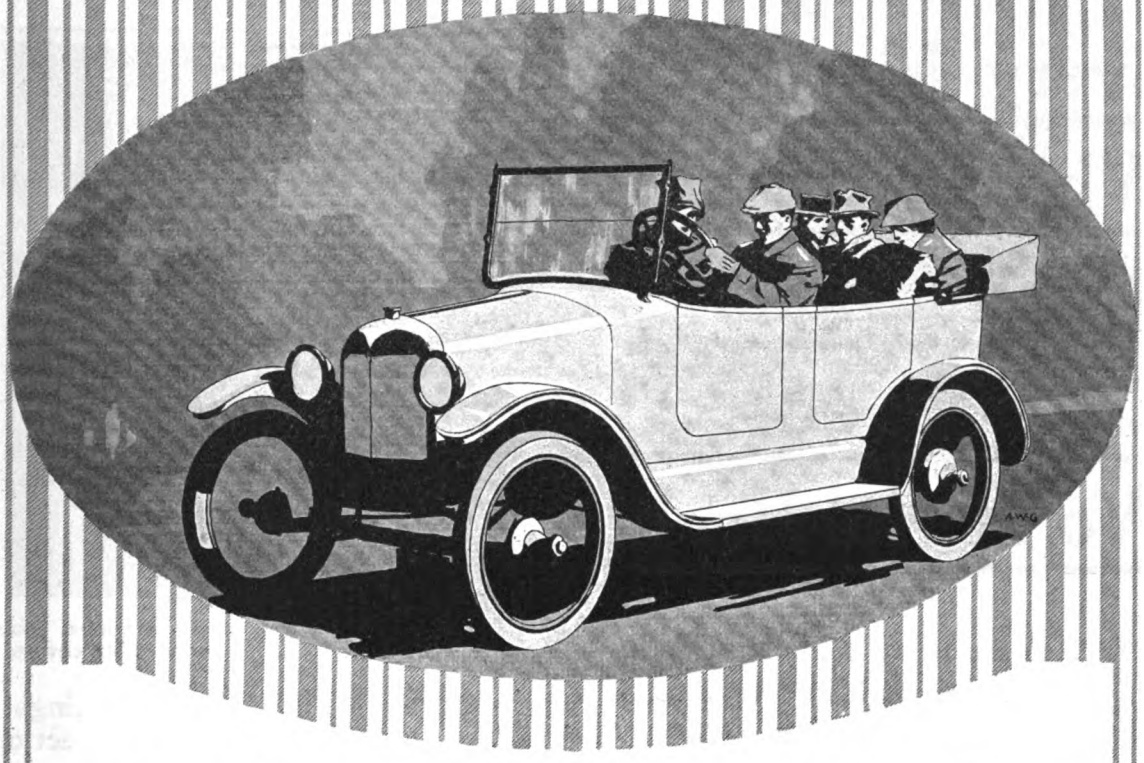


VAN CLEEF BROS.

Manufacturers Dutch Brand Rubber Cements and Auto Chemical Specialties

7701-7711 Woodlawn Ave. " " " Chicago, Illinois

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I Can Hardly Believe That it is a Ford

A person naturally uses such an expression as this on first seeing a Ford chassis equipped with a Beau Brummel Body Outfit. The appearance and riding comfort of the finest thousand dollar cars is there but all the sturdy dependability and economy of the Ford is retained.

The Tourabout Model

is a full five-passenger, four-door body, designed, finished, upholstered and equipped so that there is nothing left to be desired by even the most particular person. The price, less wheels, is $260.00.

The Sport Model

combines a racy-looking up-to-the-minute appearance with genuine comfort in any weather. Not a thing is lacking from the equipment. The price, less wheels, is $195.00.

NOW—Dealers is Your Opportunity

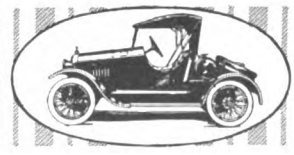
Beau Brummel Body Outfits sell easily. The market is unlimited. Wherever you find Ford cars, you find buyers. Every sale brings other sales. No service to render. No troublesome "trade-ins." Our proposition allows a liberal profit and our sales and advertising help assure easy sales. We want a progressive dealer in every town. If you are that kind, it will pay you to write at once for proposition.

Beau Brummel Bodies for any Ford Chassis

Universal Car Equipment Company

1306 Bellevue Ave. **Detroit, U. S. A.**

The Sport Model



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Every Man Who Sells, Owns or Repairs Motor Cars Needs This Wonderful Book

IT is the most illuminating and instructive work of its kind ever published. Indispensable to the novice and the expert.

It is complete, splendidly written and printed. Handsome leather binding. It is most aptly named because it treats exhaustively of the mechanics of the automobile — from the single to the eight cylinder. It makes hitherto complex subjects as simple as A. B. C.

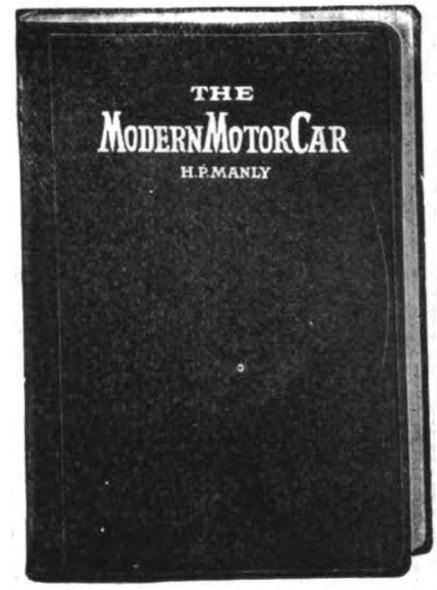
Design, construction, care and adjustment of cars considered fully. Over 400 separate troubles are diagnosed, and definite remedies prescribed.

Electrical sections particularly interesting and instructive. The reader quickly learns every worth-while detail of starting, lighting and ignition.

Book Department

The Motor World Publishing Co.

239 West 39th Street, New York



512 pages, 217 illustrations; bound in full leather, flexible covers.

A Few of the Things for which Simple Directions are Given

Adjust any make or model of carbureter.
Put electric machinery together right.
Make a noisy engine run quietly.
Trace wiring and locate breaks.
Time poppet, sleeve or rotary valves.
Locate grounded, short circuited or worn wires.
Keep transmissions from coming out of gear.
Locate starting and lighting trouble by looking at the ammeter.
Wire any make, type, age or model magneto.
Clean a cooling system while on the car.
Wire master vibrators.
Scrape bearings.
Time a magneto.
Restore scratched cylinders.
adjust vibrators.
Vulcanize tires.
Stop water leaks.
Regulate a cut-out.
Charge batteries.
Fit piston rings.
Find the polarity of wires.
Test engine oils.
Make battery liquid.

Some New Ideas

Electric lighting and starting.
Vacuum fuel feed.
Rotary valve engines.
1915 magnetos.
Electric brake.
Carbureter heating.
No history.
No out-of-date work.
No padding.
Eight cylinder engines.
Edison storage battery.
Directions for oiling daily, weekly, semi-monthly, and each 1,000 and 2,000 miles.
Two-point ignition.
Sleeve valve engines.
1915 carbureters.
Electric gear shift.
Kerosene, alcohol and benzol fuels.
Instructions in detail for 32 models of carbureters.

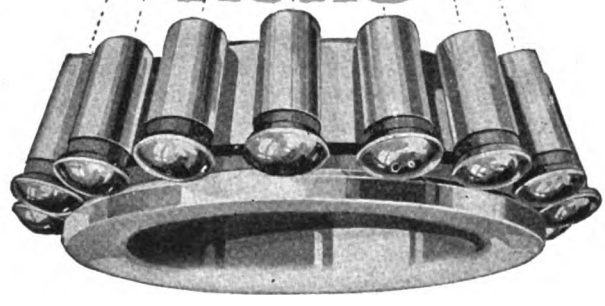
Sent Prepaid on Receipt of Price

$2.50

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BOCK

Everything Rolls



Every load carrying contact in the Bock Bearing is a *rolling* contact.

Everything rolls.

There is no thrust or end friction—no sliding and scraping.

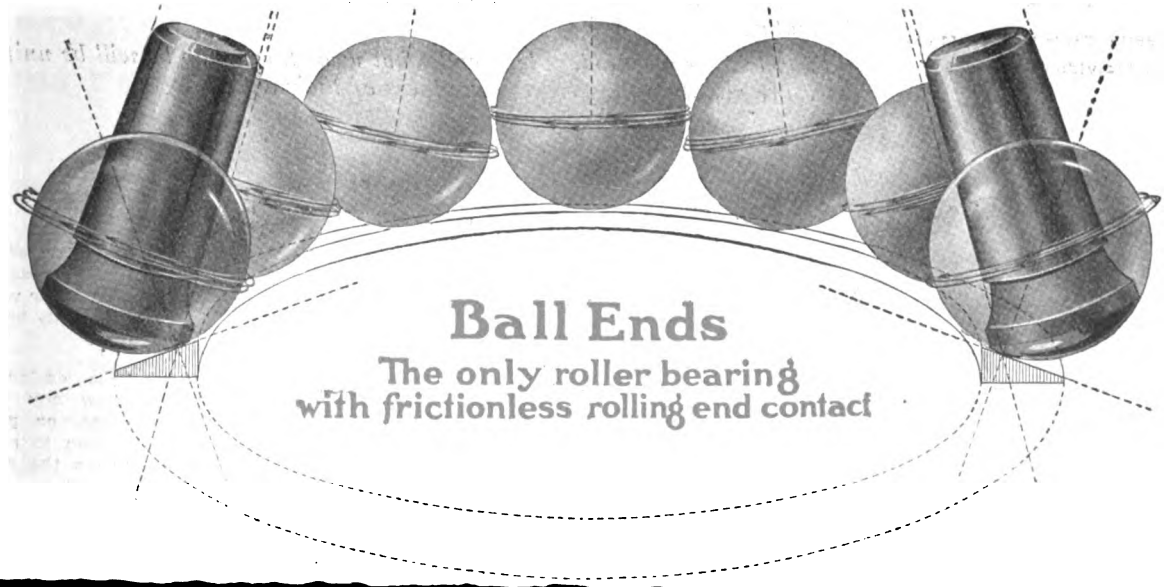
For the end of each Bock roller is a section of a perfect sphere—and *rolls* in unison with the tapered rollers.

Consequently you get the great strength of the roller bearing *plus* the best features of the ball bearing.

And this important combination *is exclusive in the Bock.*

Automobile engineers everywhere have been quick to recognize the advantages of such a bearing. And the Bock is replacing other types in motor cars as rapidly as we can fill the orders.

The Bock Bearing Company, Toledo, Ohio



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Announcing Du Bois

And a Great

DEALERS, DISTRIBUTORS, JOBBERS and REPAIRMEN



A Perfectly Sealed Ring Made from Individual Castings

This is the first gun of an advertising campaign that will make DU BOIS POWER RINGS known throughout the world—establish the name DU BOIS POWER RING with every owner of an automobile, motor boat, aeroplane, stationary engine, etc., as the standard. ¶ A year from today, no piston ring will be better known in the whole of this extensive United States, and the efficiency and great power producing qualities of DU BOIS POWER RINGS will be recognized everywhere.

The One Ring that Fulfills All Claims

The DU BOIS POWER RING overcomes the many weak points found, in some measure, in all other makes of piston rings. ¶ DU BOIS POWER RINGS will not carbon and stick—there are no carbon pockets. ¶ They will not score the cylinder walls, no dowel pins to fall out or break off, no loose parts or pieces to become disarranged or create friction. ¶ The duties for which they are intended —they perform 100% efficiently.

DU BOIS POWER RINGS will permanently increase the power of any motor.

They will permanently reduce carbon to a minimum.

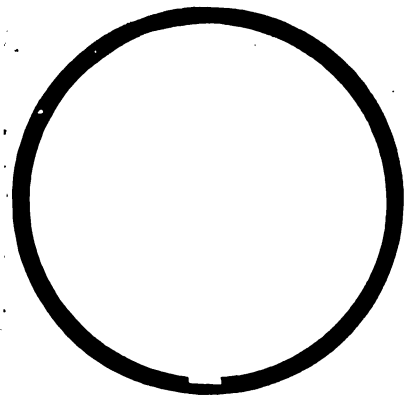
They will permanently increase the mileage of both gasoline and lubricating oil.

They will stop any motor from smoking.

They will reduce vibration by reason of reducing friction.

They will live and perform every duty consistently as long as the life of the motor.

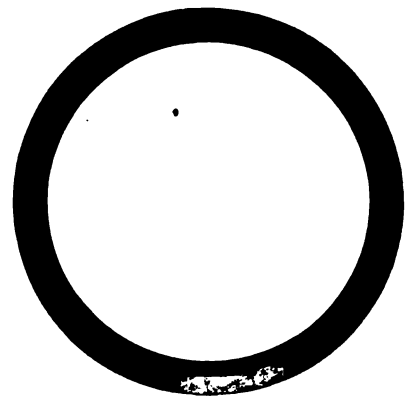
They will wear cylinders less, and what wear there may be will be uniform, and therefore maintain the perfect roundness of their walls.



The Power Ring fully expanded.

Showing how slack is taken up as cylinder walls wear.

The Power Ring will expand over one quarter of an inch—and remain absolutely compression and oil tight.



Top view of the Power Ring contracted as when in cylinder wall showing absolutely Solid top surface.

This design does not allow any of the dry gases, or pressure, or carbon to reach in between the circumferential joints.

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Power Piston Rings

New Company

ANOTHER of the BIGGER OPPORTUNITIES FOR YOU

Tried and Proven

In three years thousands of DU BOIS POWER RINGS have been sold and installed in every character and kind of motor equipment, and everywhere DU BOIS POWER RINGS are in use they have given absolute satisfaction and created new business.

DU BOIS POWER RINGS are standard equipment with one of the largest manufacturers of high price marine motors in the United States. ¶ Twelve of the best known manufacturers of Automobiles have very recently made voluntary requests for DU BOIS POWER RINGS for test purposes.

A Great New Company

And now comes a great new company, with capital, facilities, organization and experience to manufacture DU BOIS POWER RINGS in great quantities. ¶ A company composed of men with years of experience in manufacturing and distributing. ¶ A company that recognizes the necessities of both the dealer and the consumer. ¶ A company whose sole aim is to produce in the highest quality, both as to material and workmanship, an article which through the most exhaustive tests has proven to be superior to all others on the market.

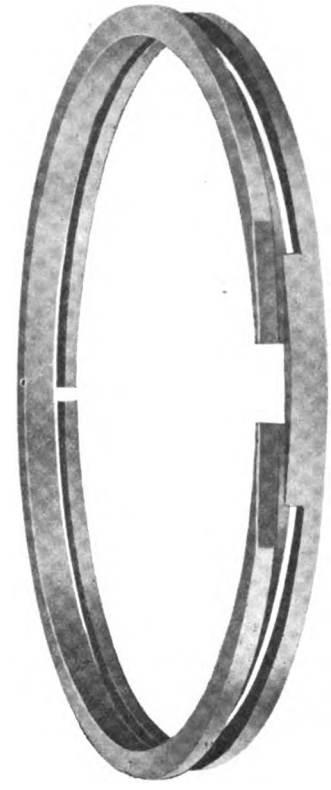
This is Truly a Dealer's Opportunity

The DU BOIS selling plan is brand new, it means permanent maximum profits for Distributor, Dealer, Jobber and Repair man.

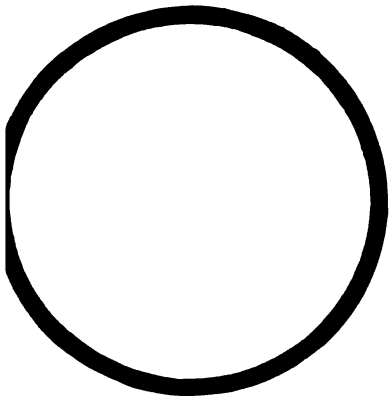
It guarantees all profits next year and the years after, on work done this year.

If you are in a position to sell DU BOIS POWER RINGS in your territory, WRITE OR WIRE TODAY. Exclusive territory is now being allotted.

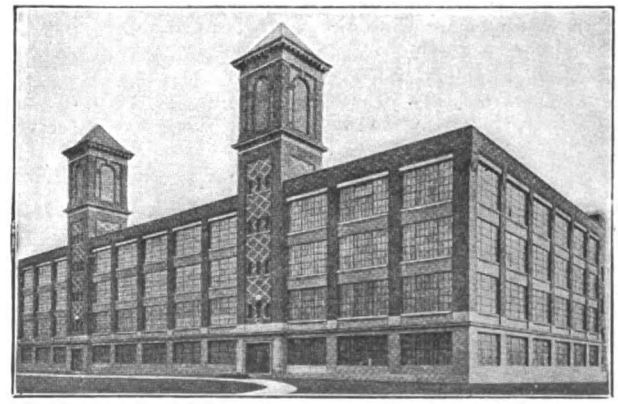
Du Bois Piston Ring Co., Inc. Department R Albany, New York, U. S. A.



No Carbon Pockets — Loose Parts or Dowel Pins



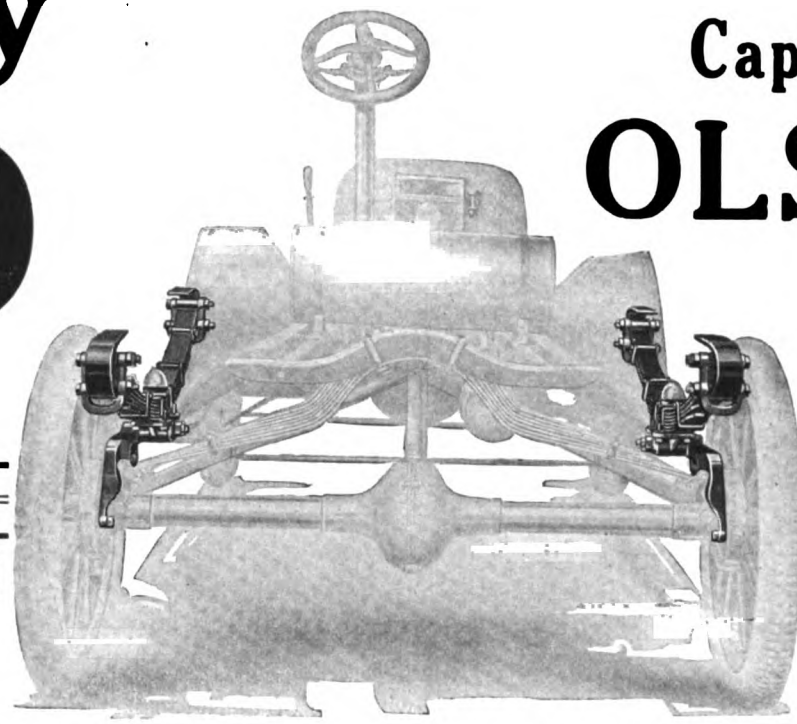
Bottom Side of Power Ring—The joints being on the lower and outer surfaces, collect oil which insures continuous lubrication to the interlocking surfaces.



New Home of DuBois Power Rings

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Only $30 For A 1000-1500 lb. Capacity OLSON Unit For Fords



OLSON 1000-lb. Capacity UNIT

Attached to A Ford Chassis

For 1000 lb-Loads 5 Leaves



For 1500 lb-Loads 7 Leaves



Saves So Much That It Sells On Sight

Thousands of farmers, grocery men, butchers, delivery firms, draymen, retailers—business men in nearly every field, have use for a 1000-lb. to 1500-lb. capacity motor truck.

Their requirements are **a reliable truck**—always ready to go, and carry its load.

These men are prospects for converted Fords. How the Ford is converted they don't care—as long as it gives service.

How much it costs they do care. Thousands of them will pay $30 for an OLSON Unit—thousands who are not even prospects for other units that serve them no better than the OLSON Unit, but cost 10 times as much.

Price—saving—service sell OLSON Units on sight. They sold at the rate of 1000 a month for 10 months before they were advertised. They are going faster than that now, with our big advertising drive behind them.

Get out and **show** the OLSON Unit. Attach one to a Ford chassis and **demonstrate** in your territory. **$30 makes sales,** where $350—what some other units cost—fails.

The OLSON Unit is attached without removing a single member of Ford construction. It deflects the load direct to the wheels where it must ultimately be carried, instead of conveying it through the frame, springs, axle, differential, etc. This makes the simplest, cheapest, most efficient attachment for the Ford delivery car.

Write for complete details of selling plan and salesmen's success. Our capacity is **1000 sets a day.** It insures **immediate delivery always. Write today for free illustrated literature and complete details.**

SWEDISH CRUCIBLE STEEL CO.

FACTORIES

Detroit, Mich., U. S. A. Windsor, Ont., Can.

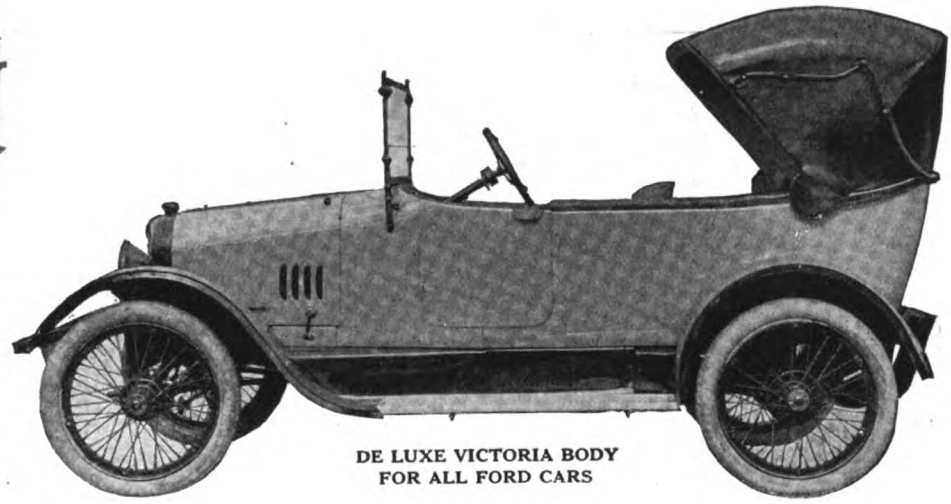
Chicago Branch: 1344 Michigan Avenue

ADDRESS: WHEEL DEPARTMENT

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DE LUXE BODIES FOR FORDS

"Seen Where The Best Cars Go."



DE LUXE VICTORIA BODY
FOR ALL FORD CARS

Ford Dealers

De Luxe Special Bodies Eliminate The Distinction Between "Fords—and Other Cars"

It is no longer necessary for you to let prospects in your territory think of "Fords—and other cars."

The Ford is just as good as "other cars." It is considerably better than most of them under $1,000. No one who knows criticizes Ford mechanism.

If prospects who disapprove of Ford appearance and buy inferior "other cars," don't like Ford bodies—sell them De Luxe Bodies. They can't find the equivalent of Ford mechanism plus De Luxe style, at anywhere near the same price.

De Luxe equipped, there is no such thing as "Fords—and other cars."

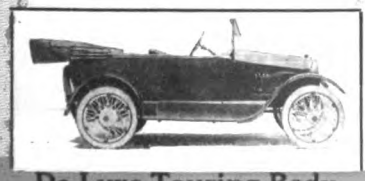
Sell Fords with De Luxe Bodies to people who buy quality, but cannot afford high-priced luxury. There are enough of them to keep you busy for a long time to come, earning good profits from De Luxe Body installations—

Besides the thousands of ready-made waiting customers who already own Ford cars.

Write or wire for liberal dealers' offer today.
De Luxe Dealers make good.

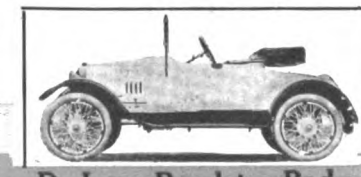
Specifications

Pressed Steel Body. Divided Front Seats—adjustable, reversible, removable. **Radiator,** "V" Type. **One-Man Top**—black mohair, **Crown Fenders. Streamline Hood. Windshield**—Clear Vision, Ventilating. **Foot Accelerator. Stewart Vacuum Gasoline System**—Touring Body Only, **Four Wire Wheels,** demountable rims, one extra rim, $37.50 extra. Special colors, $10 extra. **Price complete** (touring), $260; (roadster), $197.50, f. o. b. Detroit.



De Luxe Touring Body

Detroit Auto Products Company
38 Sherman Street Detroit, Mich.

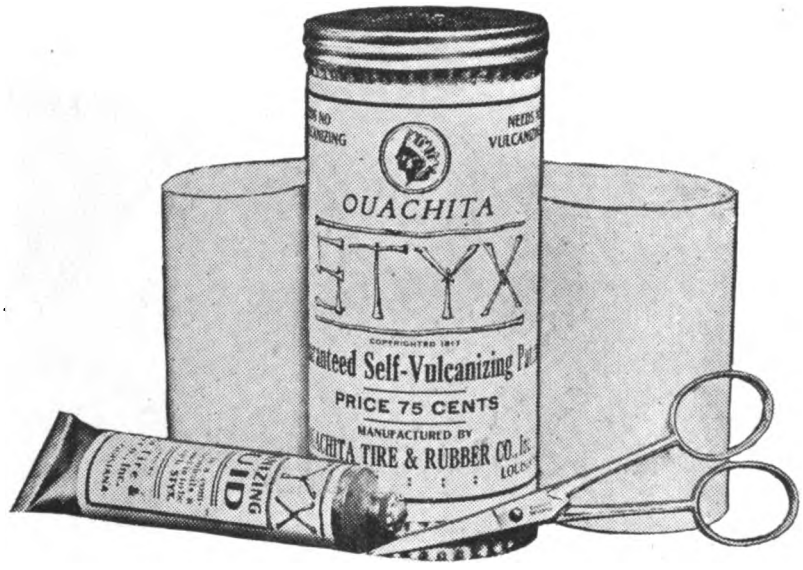


De Luxe Roadster Body

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APPLIED WITHOUT HEAT

APPLIED WITHOUT TOOLS



(PATENT PENDING)

THE FASTEST SELLING AUTOMOBILE ACCESSORY EVER OFFERED TO THE PUBLIC

SOLD FOR A DEFINITE PURPOSE AND BACKED BY A DEFINITE GUARANTEE

STYX

Copyrighted, 1916

The Scientific Way to Repair Injured Inner Tubes

A Positive Self Vulcanizing Inner-Tube Patch for Punctures and Blowouts

Can be applied by anyone—any place—and REQUIRES NO HEAT OR TOOLS. It will repair any puncture or blow-out THE INSTANT IT IS APPLIED at a cost of 1½c per puncture. It is not affected by difference in temperature; it has been frozen in ice; it has been heated to a degree that would make your casing fall to pieces and THE GREATER THE DEGREE OF HEAT THE TIGHTER IT HOLDS.

STYX

Copyrighted, 1916

has been tested in ever conceivable way an inner tube patch could be used and in every case HAS SHOWN ITSELF TO BE FAR SUPERIOR TO ANY VULCANIZED OR COLD PATCH THAT HAS EVER BEEN OFFERED TO THE PUBLIC. It is being used by thousands of motorists without a word of dissatisfaction from one of them.

A Composition of Chemicals and Rubber and Its Merits Are Incontestable

The introduction of STYX is an event—its possibilities are limitless; to the other manufacturers of inner tube repair materials it comes into the field as a new element of competition. To the motorist it brings peace of mind that is easy and restful beyond words, for the motorist can repair his injured tubes INSTANTLY—PERMANENTLY in a CLEAN, QUICK WAY without the use of Heat or Tools.

STYX

Copyrighted, 1916

is offered to the motoring public with the highest expectations based upon the experience of thousands of motorists, which has proven beyond a doubt that its merits are incontestable. Do not confuse STYX with the ordinary cloth back patches now on the market—it's a new composition and not merely a piece of rubber with a cloth back.

JOBBERS AND DEALERS: We have a proposition that will make you big money. *You will have no competition.* Our sales plan is an exclusive one. Write or wire us today—your competitor may not wait until tomorrow.

OUACHITA TIRE & RUBBER COMPANY, Inc.

MONROE, LOUISIANA

Western Representative
Keeton Sales Company, 1209 West 52nd St., Los Angeles, Calif.

Southern Representative
Interstate Electric Company, New Orleans, La.

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KEYSTONE SHOCK ABSORBER

Where Quality Comes First Keystone Fills the Bill

KEYSTONE SHOCK ABSORBERS

WHEN you are looking for a set of shock absorbers to smooth out the bumps and jolts and side sways, which spoil so much of the pleasure of motoring, and to ease up on your springs and tires, you want to buy a brand that will do the work efficiently. You want to buy a brand that will last as long as your car—in short, you want to get your money's worth. Buy Keystone Shock Absorbers. They have the necessary quality to smooth out your road effectively, and the necessary strength to last as long as you need them.

KEYSTONE SHOCK ABSORBERS ARE GUARANTEED NOT TO BREAK. They are of very heavy construction throughout, with long bearings and double cylinders. The spring is exceptionally strong and of extra temper. Drop forgings are used instead of castings in the hanger bolts and lugs, and in the cross plate. In every detail Keystone Shock Absorbers are of unusual quality. They are beautifully finished in Black Enamel and Nickel Plate.

Price, per set, for all sizes, $20.00.

Dealers know that it pays to sell high quality goods. You can't afford to sell shock absorbers that come back—or lose customers for you. Sell Keystone and insure satisfaction.
Attractive agency proposition to right parties.

Manufactured by

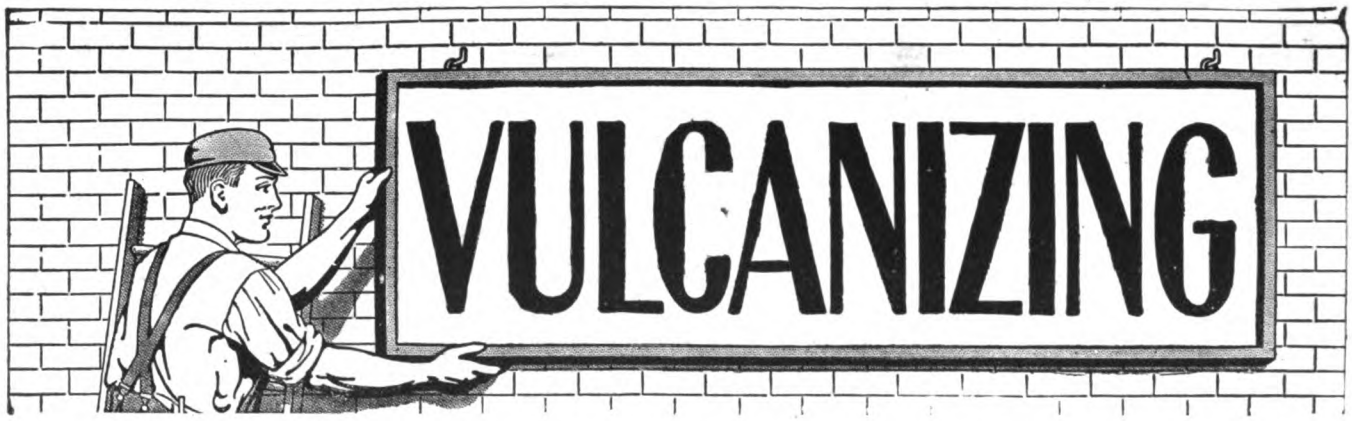
Steel City Electric Co.

1207-1219 Columbus Avenue
Pittsburgh, Pa.



1917 Model

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How to Make Bigger Money

Every one of your customers has tire repairing to be done right along. It is a simple matter for you to get this business. Half your problem is already solved. You have the customers and a place of business. Your overhead is fixed. You have workmen that can repair tires as well as they can do any other kind of repairing.

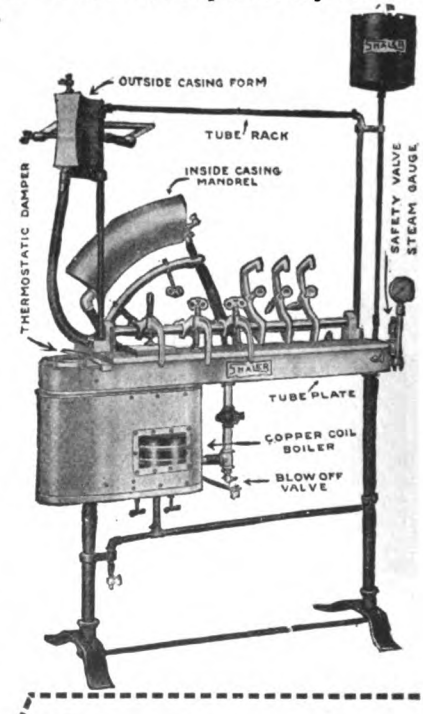
All you need now to get the tire repair profits is a vulcanizer, an economical, simple, inexpensive outfit that will enable your workmen to do every practicable kind of tire work perfectly and at a profit to you. Shaler Vulcanizers fill these requirements perfectly. Casing repairs are made with half the cost of time and material required by old methods. The Wrapped Tread Method is so simple that anyone can understand it. The initial cost of the vulcanizer and its cost of operation are only a fraction of the cost of other equipment that can neither do more work nor make as good repairs.

Resolve now to get the profits on your customers' tire repairs. Send the coupon today for our new 1917 catalog, the most complete vulcanizer catalog ever issued.

SHALER

Vulcanizing Plant $65

Steam heated. Price subject to trade discount



Repairs 200 tubes and a dozen casings daily. Temperature controlled automatically. Heats in 25 minutes—needs no regulating. Casings repaired by approved Wrapped Tread Method—no airbags.

No other guaranteed steam vulcanizer at near the same price has so great a capacity, heats so quickly, or operates so simply.

Widely used by the United States and foreign governments. Standard equipment in the majority of good repair shops. The only shop vulcanizer sold by 97% of the leading jobbers—year after year.

Ask Your Jobber's Salesman

The Shaler Line of Vulcanizers (or "Profits for Accessory Dealers")

The Shaler Line includes the most popular motorist's vulcanizers on the market—models selling from $1.50 to $12.50—every one in demand and every one bearing a generous margin of profit.

Our 1917 advertising campaign is going to bring them more forcibly than ever to your customers' attention.

Ask your jobber's salesman about the famous "Vul-Kit" and the new "5-Minute." He will tell you what other dealers are doing with them.

Catalog Free Mail Coupon!

Every day you delay is a day of vulcanizing business lost. Get our new 1917 catalog. Mail the coupon at once—NOW!

C. A. Shaler Co.
406 Fourth St., Waupun, Wis.

Opportunity Coupon

C. A. SHALER CO,,
406 Fourth St., Waupun, Wis.

Send new catalog of Vulcanizers for Motorists and Repair Shops.

Name .....

Address .....

Do you sell accessories? .....

Jobber's Name .....

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In the Steering Column



The illustration shows the application of Bound Brook Oil-less Bushings as used in all Jacox Steering Columns, manufactured by the Jackson-Church-Wilcox.

BOUND BROOK

TRADE MARK REG. U. S. PAT. OFF.

THE use of plain ordinary bronze bushings in the steering column simply means that the owner must never forget to keep the bushings well lubricated.

For neglect here would mean quick bushing wear, a stubborn wheel to turn and the ever present possibility of the bushings gripping or sticking with disastrous results to the driver.

But with BOUND BROOK (*Graphite and Bronze*) Oil-less Bushings in the steering column there is positive and lasting assurance of a smoothly efficient, quick, easy turning column, *even though you neglect the bushings.*

BOUND BROOK (*Oil-less*) Bushings are self-lubricating. They contain within themselves sufficient lubrication to last their life-time. You need never worry about them. They need no attention to give efficient service.

BOUND BROOK (*Oil-less*) Bushings are used instead of ordinary bushings in bearings places about automobiles and trucks that are difficult or impossible to keep properly lubricated.

BOUND BROOK OIL-LESS BEARING COMPANY

Specialists in the manufacture of Oil-less Bushings for more than a third of a century

BOUND BROOK, NEW JERSEY

Manufacturers of Nigrum (Impregnated Wood) Oil-less Bushings.

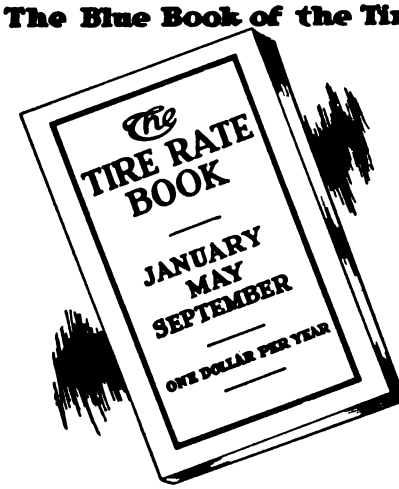
All Genuine Graphited Oil-less Bushings have always been made at Bound Brook, U. S. A.

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The Tire Rate Book

for January is ready for distribution

"The Blue Book of the Tire Trade"



It is the greatest edition ever published—an invaluable guide to those who sell tires.

The features incorporated in this issue are:
90 Pneumatic Tire Price Schedules.
10 Solid Tire Price Schedules.
The Tire Rate Book Standard Telegraphic Code.
The Motor World Guide, containing principal specifications of all U. S. A. cars.
Commercial Vehicle Tire sizes and Rim data covering 75 different makes of commercial cars.
Pleasure Vehicle Tire sizes and Rim data on 197 different makes of cars.

The above information, and more that is both interesting and valuable, comprises the January edition of 176 pages—60 pages larger than the September edition.

Don't delay in mailing your subscription—

Do it now and know (among many other things) **how many tires must be made to equip U. S. A. cars in 1917.**

All of this is to be found in the **January Edition,** 50c yearly; 25c a copy.

Issued January—May—September.

THE TIRE RATE BOOK

PUBLISHED BY

THE CLASS JOURNAL CO.

239 West 39th Street

NEW YORK, N. Y.

Order by Coupon or by Letter

The Tire Rate Book (Published by Motor World),
239 W. 39th Street, New York City.

Enclosed please find $..... for ..... subscriptions beginning with the January, 1917, issue.

Name .....

Address .....

Subscription price, 50 cents per year—January, May and September issues.

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12 Acres of Floor Space

Unlimited Water Power

BIRTHPLACE OF BABCOCK QUALITY

Tremendous Capacity—Unit System of Production in 1000 Lots—Low Operating Costs

Born at this site in 1845, **"Babcock Quality"** is today the foundation and corner-stone upon which a great industrial plant has grown. **"Babcock"** has meant **"Quality"** to generations of carriage owners. The same sterling **quality** distinguishes

BABCOCK

COMMERCIAL BODIES

Available water power of over 1000 H.P. makes us independent of the mounting cost of coal.

Sheds which house over 2,000,000 feet of seasoning lumber insure a constant supply of the choicest native hardwoods—the best obtainable anywhere.

From our own dry-kiln the wood comes in prime condition to the saws and benches of our wood-shop.

Our own smith-shop produces the patented steel skeleton which makes every Babcock Body lighter and stronger than those of other makes.

Over 12 acres of factory floorspace afford the room required for tremendous volume production.

Paint-shops, themselves as large as the ordinary factory, accommodate the entering stream of bodies, which emerge with the smooth, enduring evenness of finish which reflects our long supremacy in this, the coach-builder's unrivaled art.

Our huge shipping warehouse and railroad sidings permit the prompt shipments of which we justly boast.

An organization trained for 50 years in the finest quality of body-building makes for efficiency in all departments.

These unparalleled advantages, which make our factory overhead unusually low, unite with our quality production to permit you to buy **"Babcock Quality" Bodies at Remarkably Reasonable Prices.**

TO DEALERS

Babcock Bodies carry their own story. They are the quality bodies for commercial cars. **They sell themselves and stay sold.** The Babcock name and reputation is convincing, and our advertising adds the last link to the chain of selling evidence.

We want dependable dealers. If you are in the game to **stay**, get our catalogs and dealers' proposition. Both are handsome.

TO BUYERS

There is more dollar-for-dollar value in a Babcock Body **from your own standpoint** than in any other commercial body you could possibly obtain. They are lightest, strongest and cheapest in final cost.

We make a Body for Every Need.

H. H. BABCOCK COMPANY

WATERTOWN, FOUNDED 1845 NEW YORK.

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When your wheels spin in mud, snow, ice, sand, etc., and traction seems impossible.

Haberstick's "WON'T LET YOU STICK"

Gives you traction where there seems to be none. It lays its own road—puts itself on.

More than pays for itself in saving wear and tear on tires and engine—and saves time, clothes and temper.

The canvas tread is carried in the tool box in a metal container (12"x3"x8") and weighs only 4½ lb. When needed it is slipped into cleats under the running board. The end of the tread is pulled out of the slot and the ropes tied to a spoke.

When you start your engine the "Won't Let You Stick" is drawn out and wrapped around your wheel. The dry tread sticks to the tire, while the heavy rope inserts dig into the mud—and out you come slick as grease.

Price, $6. Tread may be washed and replaced or refills obtained at slight expense.

Dealers should get in line to make profit from this highly successful safety device. Write for our attractive offer.

A HEAVY CONSTRUCTION
MADE FOR TRUCKS, ETC.

The device is amply covered by LETTERS PATENT in the United States and Canada.

Every claim made by us is backed by a strong protective guarantee.

Patented June 29, 1915—October 17, 1916.

Auto Accessories Co. Wheeling W. Va.

TEAR THIS OUT



If your dealer can't supply you, fill out this coupon and mail it direct with $6, cash or money order.

COUPON

Auto Accessories Co., Wheeling, W.Va., U.S.A.

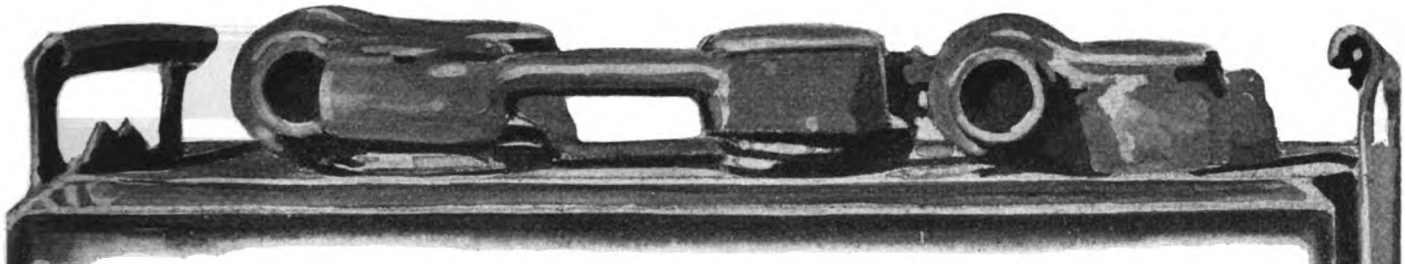
For the enclosed $6.00 send me one "WON'T LET YOU STICK," prepaid. You to refund my money if after following directions and giving it a fair trial, it does not accomplish what you claim for it.

Name .....
Street .....
City .....State.....
Dealer's Name .....
Address .....

(If dealer's name is not given charges will not be prepaid.)



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—and now comes

National Advertising

Beginning with smashing pages in Saturday Evening Post, and Collier's

After a sixteen months' campaign of direct intensive advertising to strengthen each Gould Dealer in his local territory—

After developing a Service Organization comprising more than 1000 Service Stations and a Dealer Organization of more than 2500 Dealers—the largest in the starting battery field—

After perfecting and increasing our Plan of Distribution until now there are thirty Gould Distributors located at central points throughout the country, rendering prompt, efficient co-operation to Gould Dealers—

We are ready for, and have already begun a strong, steady, national advertising campaign to build bigger sales for our 2500 Dealers

Gould Storage Battery Co.

30 East Forty-second Street, New York

PHILADELPHIA CLEVELAND DETROIT CHICAGO
LOS ANGELES SAN FRANCISCO

WORKS: DEPEW, N. Y.

Gould STORAGE BATTERY

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Notice of Price Advance!

Because of greatly increased cost of materials and labor it is necessary to advance the net price of Motor World's simplified System of Accounting to $15.00. Present price is $12.00.

New price will become effective on all orders placed on and after April 1st, 1917.

Order Now and Save 25 Per Cent

Every dealer and garage owner who is operating without a complete and accurate system of accounting owes it to himself—to his very best business interests, to reform his methods and get started on the right track.



Already more than 1500 of these simplified systems are in successful operation in as many dealer and garage establishments throughout the United States. Hundreds of letters are on file from dealers and garage owners who commend Motor World for having developed this wonderful simplified accounting system.

If your business is being conducted in a systemless manner we urge you to get started on the right course NOW. Take advantage of the present low price. Get your order on file now—before the price is advanced twenty-five per cent.

The entire system is contained in one loose leaf binder — everything in one book, including an index set and 400 "Income," "Expense" and "Accounts Receivable" sheets. Also included is a 36-page book which describes the operation of the system in detail. Instructions are written so that you grasp every detail even tho you never had bookkeeping experience or training.

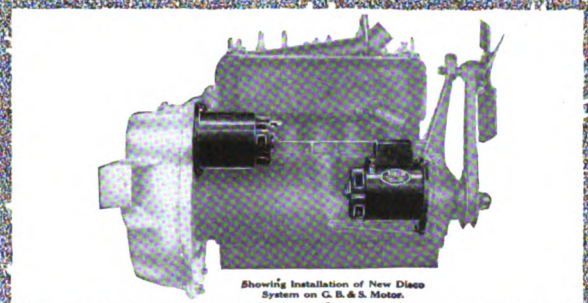
Order now—don't put it off a single day. Remit by check or money order. Address:

MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

239 West 39th St., New York City

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DISCO



Showing Installation of New Disco System on G. R. & S. Motor.

All cars would be better cars if Disco Eqipped

4 Reasons for the Superiority of the NEW DISCO Starting and Lighting System

Performance

The generator of the New Disco Two Unit System will run sparklessly and noiselessly at the highest engine speeds. This was proven by running for days at 7500 R. P. M. The generator cuts in at from 6 to 6½ miles per hour—will charge even in city driving. The starter will break loose and spin a 4x5 six cylinder motor with the lowest possible current draw from the battery.

Workmanship

Built in a new factory equipped with special machinery such as is usually found only in the largest automobile plants. The machining of field frame is done in a single chucking operation, assuring the proper alignment of all surfaces.

Construction

Two-unit, four-pole type—each unit weighs only 22 pounds—Norma bearings throughout generator. Regulator and cutout mounted integral with generator. The famous Bendix drive used on starting motor.

Accessibility

Removing 4 thru-bolts is all that is necessary to disassemble either unit. Easy to clean—no skilled mechanics required. Neat covers on the end-plates permit casual inspection of brushes and commutators in operation.

For the Ford this system sells at $75, including an ammeter and a lock-protected switch and starting-button for the steering post.

DISCO ELECTRIC STARTER CORPORATION
Detroit, U. S. A.

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A Service Feature of International Motor Trucks



EXCEPT perhaps the engine, no single part of the motor truck you buy deserves closer study than the rear axle. The useful life of the truck depends largely upon the behavior of this important member. The one piece type, with chain drive, has the advantages of strength and lightness. The shaft drive has the advantages of neatness, silence, and protection of the drive gears. The *International* rear axle combines the advantages of both types and does away with their disadvantages.

A heavy one-piece forging carries the load. A shaft drive delivers the power of the motor to the rear wheels through an internal gear. The axle is as strong as a chain drive axle, yet is much lighter than the usual shaft drive type, and gives more road clearance. The internal spur gear, also, outwears every other form of drive, and is the one that behaves best if your driver should ever be careless about oiling it.

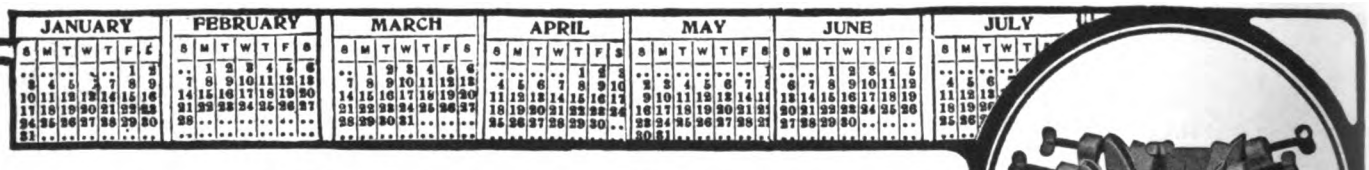
The rear axle is only one of many first-class features of *International Motor Trucks*. We want your order, but we want it only on the basis that an International Motor Truck will give you better service and prove to be a better investment than any other truck you can buy. Write and tell us which of these two models comes nearest to your requirements, and we will send you complete description.

Model H—1500 lbs. capacity, chassis, $1225 cash f.o.b. factory
Model F—2000 lbs. capacity, chassis, $1500 cash f.o.b. factory

International Harvester Company of America

(INCORPORATED)

155 Harvester Building **Chicago, U. S. A.**



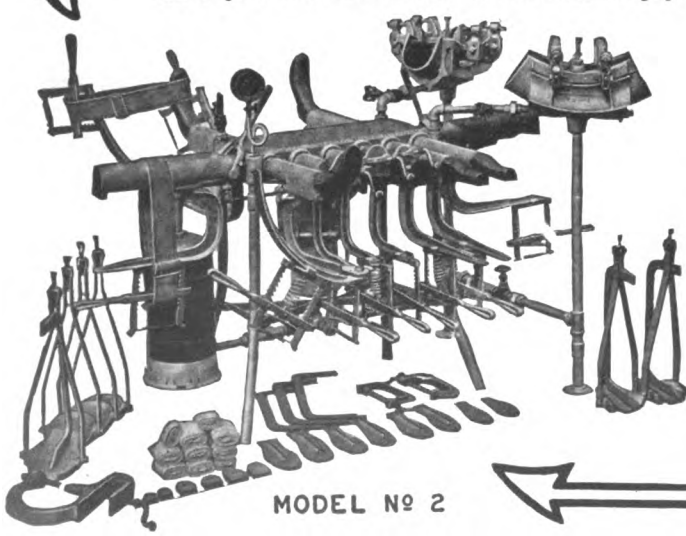
AN ALL YEAR VULCANIZING BUSINESS



The ARTHUR VULCANIZER has advanced vulcanizing from a mere one-season business to an ALL YEAR BUSINESS.

It secures repair work during even the months that were formerly the dull season.

No repair man can afford to close his shop part of the year.



THE ARTHUR MODEL No. 2 FOOTWEAR & TIRE VULCANIZER is the outfit that has opened the way to success. It handles all kinds of repairs to rubber foot wear and repairs to inner tubes and casings.

Write for full information and catalogue.

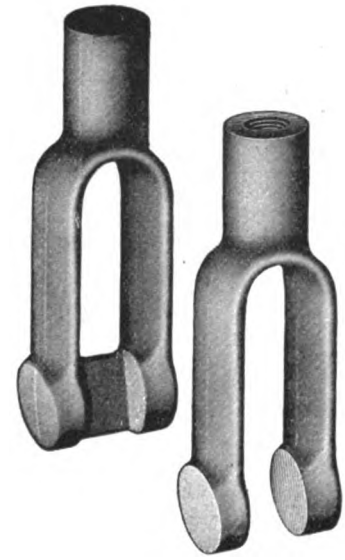
THE ARTHUR VULCANIZING MACHINE COMPANY

Griswold St. Warren, Ohio



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Universally Used By Manufacturers of Automobiles



The Rod and Yoke Ends made by the Billings & Spencer Co. have long been considered standard throughout the automobile industry. Our tremendous facilities and the large stock on hand enable us to make prompt deliveries of



Standard Rod and Yoke Ends

S. A. E., A. L. A. M., and B. & S. Standards. Drop forged of highest grade open-hearth steel. Correct design and correct millings.

Let us submit quotations.

The Billings & Spencer Company
Hartford, Conn., U.S.A.

Garage Necessities That Draw Trade Your Way



Get the edge on competition by installing a Curtis Air Compressor. It will draw trade your way and hold business for you against keen methods of competitors and "cut prices".

Curtis outfits furnish **Air Free From Oil.** Just what the auto owner is looking for. It means fewer blow-outs, fewer punctures, increased mileage, less repairs. Saves him many dollars upkeep every month—makes him your friend for life.

CURTIS AIR
FREE FROM OIL

The Curtis Air Compressor is built by manufacturers who have had 25 years experience as specialists in this line. It is the only Garage Air Compressor so designed that it can't flood the cylinder with more oil than it needs or can use. No danger of forcing oil into the air line. Guaranteed to stand up under severest strains of hard usage and give good, efficient service at all times and under all conditions.

A Paying Investment

Besides pulling trade your way—furnishing air **Free From Oil**—note what a Curtis Air Compressor will do for you. You can **Paint** with it—use it for **Cleaning** metal bodies—use it on your **Vulcanizer**—use it **Lifting** heavy loads—for **Blowing** dust from cushions and chips and drillings from tools—for **Operating** kerosene cleaners, sand blasts, power presses, pneumatic jacks—for **Pumping** oil and in numerous other ways.

5 Sizes—120 Combinations

Send coupon for full information and attractive prices. Find out about these Trade Getters—Money Makers. Our proposition is one that will appeal to you. Write TODAY. Or, ask your jobber for prices, but insist on the CURTIS.

Curtis Pneumatic Machinery Co.
1546 Kienlen Avenue St. Louis, Mo.
Branch Office: 531-B Hudson Terminal, New York



CURTIS CORRECT PRESSURE Tire Filling Station

will make your Garage the most popular one in town—a favorite stopping place for all motorists. Why? Because by merely turning the dial to size of tire, motorists can inflate tires to correct pressure, regardless of pressure carried in the storage tank—eliminates extra strain on tires caused by over inflation.

By securing correct pressure for tires, rim cutting is prevented; punctures and stone bruises are almost entirely eliminated; mileage is increased; tire expense reduced. A soft tire rides easily, but wears out quickly.

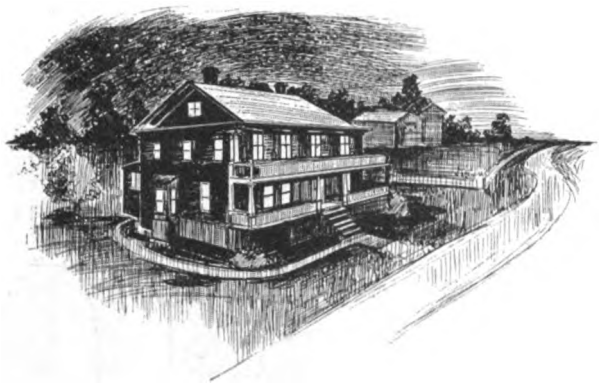
Send coupon for description and prices of full equipment all ready for connection to your air supply lines. We'll send you full details and tell you how a Curtis Station **pays for itself in new business brought in.**

CURTIS PNEUMATIC MACHINERY CO.
1546 Kienlen Ave. St. Louis, Mo.

Gentlemen: Please send me full details regarding ☐
Curtis Garage Air Compressor
Curtis Correct Pressure Tire Filling Station ☐
Also low prices and your proposition.

Name.....
Address.....
Jobber's Name.....
Address.....

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The

GENERAL GAS-ELECTRIC CO.

of Hanover, Pa.

Announces to the Trade

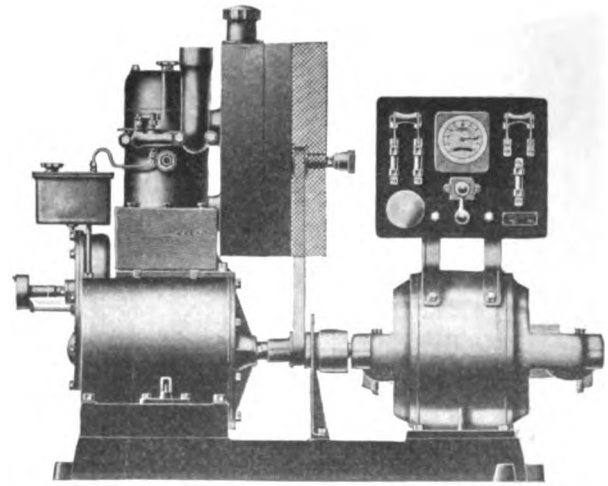
The GENCO-LIGHT Power Plant

and Is in a Position Now to Appoint Dealers

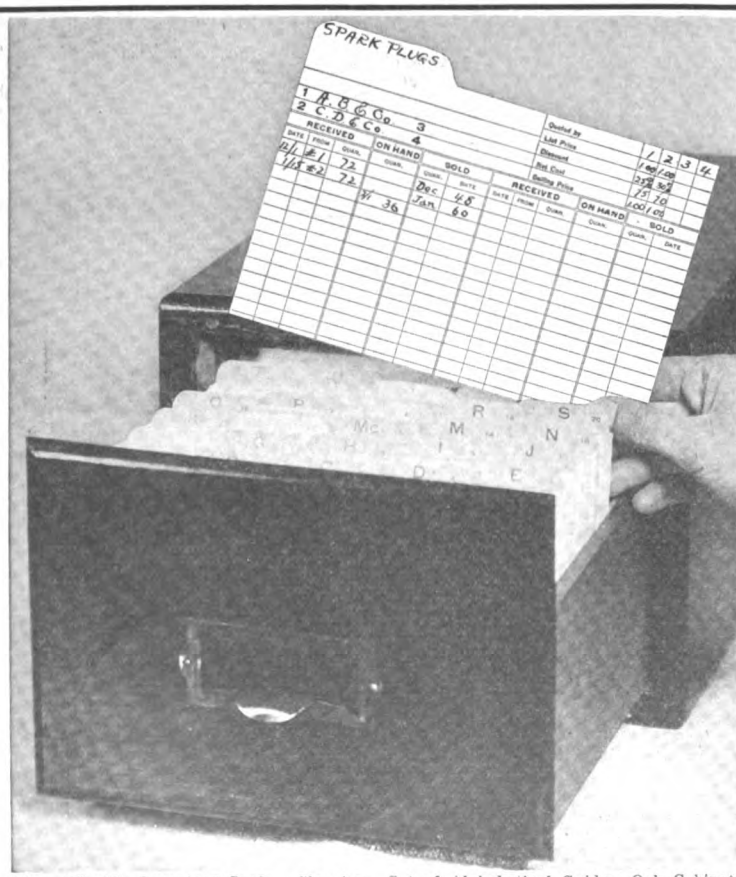
The GENCO-LIGHT Plant produces electricity at four cents a kilowatt-hour. It is the Ideal Farm Lighting Plant. Besides it can operate as a self-starting 2 H. P. gasoline or kerosene engine.

Our product is of very high grade. Our dealer's proposition is very attractive. The opportunity of representing a money-maker is yours now. Write for dealer's proposition. Our selling season is all year round.

General Gas-Electric Co.
Hanover, Pa. U. S. A.



The above cut shows a GENCO-LIGHT Power Plant



Motor World's Inventory Cards. Size 4 x 6, $1.00 per 100; $9.00 per 1000. Size 5 x 8, $1.25 per 100; $12.00 per 1000. Outfit 46A, consisting of 500 Cards, 4 x 6. Set of Alphabetical Guides, Oak Cabinet, Complete, $8.75. Outfit 58A, consisting of 500 Cards, 5 x 8, Set of Alphabetical Guides, Oak Cabinet, Complete, $11.00.

You Need This System!

This Inventory and Perpetual Stock Record card system shows plainly, quickly and accurately the condition of your stock of any article on hand—its cost and selling price—how many bought, how many sold, and the balance on hand.

The System is essential to good business methods. NOW is a good time to install it. Will pay for itself speedily, and prove a builder of profits. Act quickly. Send orders to:

Motor World

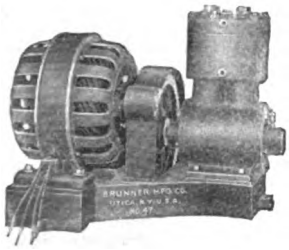
System Department

239 West 39th St., N. Y. C.

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Is there a BRUNNER Air Compressor in Your Garage?





Mr. Garageman we believe the Brunner Air Compressor is deserving of your most careful consideration, not merely for the reason that it is the most practical and efficient Garage Air Compressor manufactured, but because it is built in a plant that was constructed for the special purpose of building Garage Air Compressors. Because it is backed by an organization whose entire time and attention has been devoted to the development and building of Garage Air Compressors for many years. Because the Brunner Air Compressor has been giving the garageman "his money's worth" and a little bit more ever since the garage business has been a business. In short the Brunner has made good.

A BRUNNER AIR COMPRESSOR IN YOUR GARAGE AND

A BRUNNER SIGN ON YOUR GARAGE would bring the trade of the Brunnerwise Motorist to your garage; he is the motorist who has learned to recognize the Brunner Sign as an unfailing sign of reliable and efficient free air service which this sign indicates.
Mr. Garageman, it is a fact that Brunner Service, advertised by means of the Brunner Sign, is bringing business to the Brunner-equipped garage, and if your compressed air equipment is not up to the minute it will be to your interest to



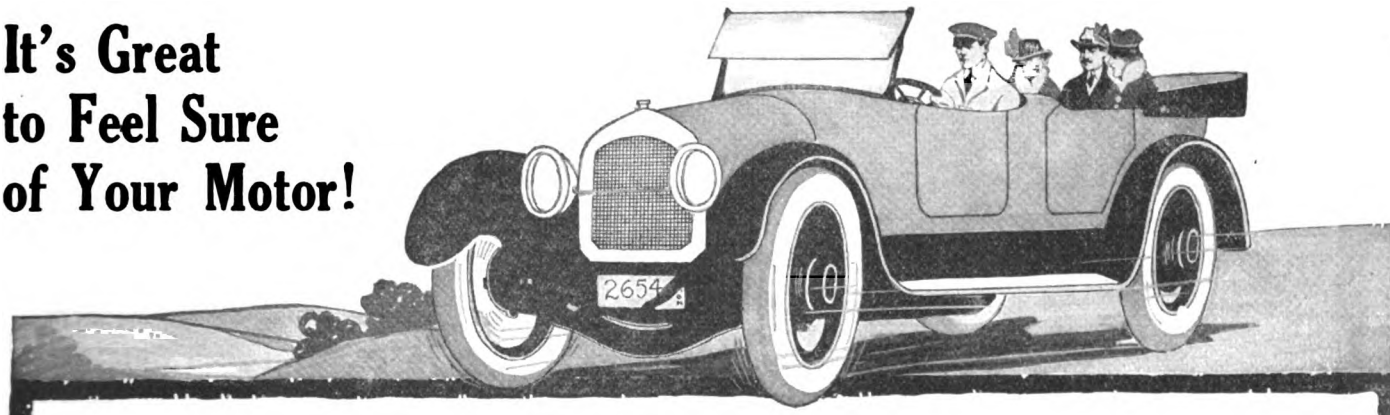
INVESTIGATE THE BRUNNER AIR COMPRESSOR

We will be very glad to send you our new No. 14 Catalogue, also our Garageman's Handbook on Compressed Air. You should read this book, Mr. Garageman, and get facts which will aid you in selecting the right compressor for your requirements.
THERE IS A BRUNNER JOBBER COVERING YOUR TERRITORY. WE WILL BE GLAD TO SEND YOU HIS NAME.

BRUNNER MANUFACTURING COMPANY

Main Office and Plant: UTICA, N. Y. **Cincinnati Branch: 419 First National Bank Building, CINCINNATI, OHIO**

It's Great to Feel Sure of Your Motor!



When you KNOW every explosion will give you ALL its power—that's when motoring is solid satisfaction. The

EISEMANN MAGNETO

makes complete combustion certain. It drives its intense, penetrating spark through the densest compression. Mixture rich or lean, motor racing or barely turning over, you'll be sure of full power if your car is Eisemann equipped!



THE EISEMANN MAGNETO COMPANY
Sales and General Offices, 32-33d St., Brooklyn, N. Y.
Detroit, Mich., 802 Woodward Ave.

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This Is The Plug



These Are the Manufacturers Who Equip With AC

The Standard Spark Plug of America

Packard	Buick	Enger	McLaughlin
Pierce-Arrow	Oakland	Lexington-	(Canada)
Cadillac	Oldsmobile	Howard	Monroe
Marmon	Jeffery	Brockway	Neteo Trucks
Hudson	Stearns-	Truck	Moreland
Chalmers	Knight	Chase Truck	Trucks
Hupmobile	Saxon	Daniels	Pilot
Chandler	Stutz	Empire	Sayers-Scovill
Haynes	National	Federal	Crane-Simplex
Chevrolet	Velie	G. M. C.	Singer
Dort	Jackson	GrammTrucks	Stephens
Cole	Apperson	Kissel Kar	United Truck
Reo	Davis	Palmer-Moore	Wilcox Trux
Paige	Detroiter	Murray	Jordan
Peerless	Paterson	Bour-Davis	Liberty
Dodge Brothers	McFarlan	Premier	
	Westcott	Knox	

No Greater Recommendation Can Be Given a Spark Plug

Champion Ignition Co. Flint, Mich.

Sold Everywhere

Have You This Plug On Your Car?

Accept No Plug Unless A C is Burnt Into the Porcelain

BATTERY CHARGING BRINGS BIG PROFITS

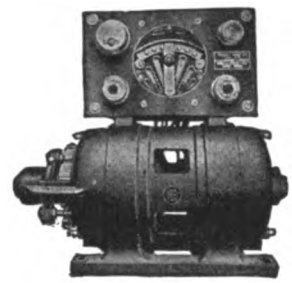


A Trenton, N. J., garage is clearing $89.00 PROFIT EACH MONTH on one HB Battery Charging Outfit, and has ordered a second machine. Charging Auto Starting and Lighting Batteries *is profitable business* PROVIDED YOU HAVE THE RIGHT CHARGING EQUIPMENT.

The HB Charger was designed with YOUR needs in view. It will charge from one to six Auto Starting and Lighting Batteries at one time. The Average Current Cost is 15c. per battery. You get from 75c. to $1.50 for each battery charged. Figure your profits when you can charge six batteries on each run of the generator.

Every Auto Storage Battery needs a full charge outside the car at least once a month, as a well charged battery means a *quick start—brilliant lights—and plenty of power*. Car owners are asking for Battery Service, and will go where they can get it.

HB Battery Charging Will Bring You a Net Profit of $20 to $60 Each Month



HB users are actually clearing these profits each month. A Cuero, Texas, Garage clears $40.00—a Stromsburg, Nebr., Garage clears $54.00; Douglas, Georgia, $58.00; Topeka, Indiana, $48.75; Trenton, N. J., $89.00. These figures are actually taken from customers' letters. Names can be given if desired.

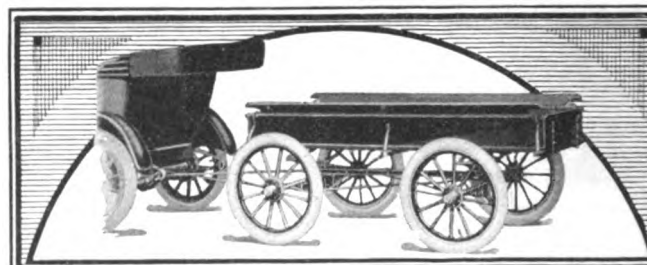
$10.00 PLACES THIS MONEY-MAKER IN YOUR GARAGE. The balance in ten monthly payments of fourteen dollars each. Your only expense to have the HB set should be the initial payment, as your profits each month should more than take care of the small payments. Where city current is not available, we can also furnish a belt-driven outfit.

Mail this ad today with your name. We'll gladly tell you more about this moneymaker. *Delay doesn't pay dividends.* DO IT NOW.

HB

HOBART BROTHERS COMPANY

Box 42 Troy, Ohio



PARRY TRAILERS

PARRY TRAILERS absolutely track—regardless of what kind of road you're on.

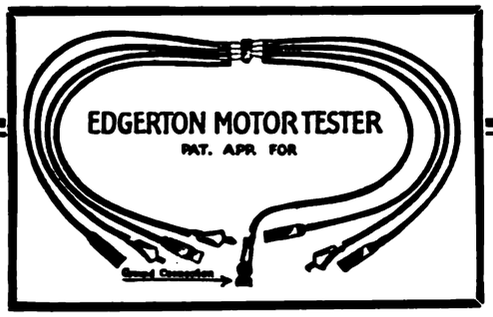
For the farmer, merchant, or draying contractor, these sturdy 4-wheel trailers are ideal. They are economical to buy, require no upkeep, and will increase hauling efficiency 100%.

Parry Trailers are the result of years' experience in manufacturing buggies and wagons. They are rigidly made of the finest grade of seasoned lumber, and are assembled by expert mechanics.

PARRY MFG. CO.

INDIANAPOLIS, U. S. A.

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A Tester That Will Sell Because It—

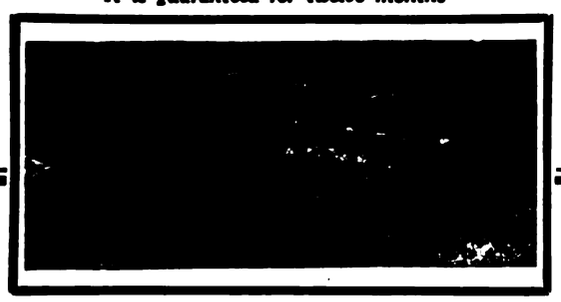
Locates instantly missing explosions
Weak cylinders
Knocking bearings
Makes Carburetor adjustments easier
And burns Carbon off Exhaust
Valve Seats in a few minutes

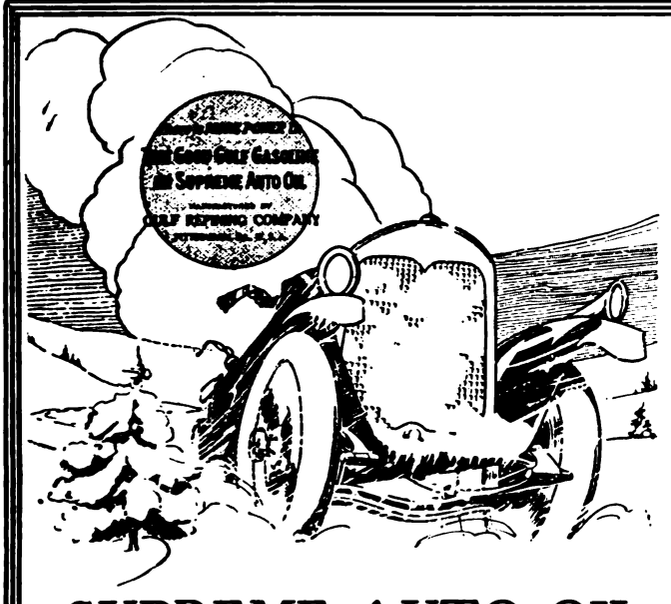
It does this scientifically, and at a minimum expense of time and labor and without dismantling any part of the motor. Every garageman, repairman and owner needs it and will get it. Whether he gets it from you depends on how soon you—

WRITE FOR PARTICULARS AND TRADE PRICES TO

R. G. EDGERTON & COMPANY
Sole Manufacturers
Suffolk **Virginia**

It is guaranteed for twelve months





SUPREME AUTO OIL

Starts with the Engine

This is most important during the winter months. You should know whether the oil you are using "flows freely at zero." All oils do not possess this feature—notably the paraffine-base oils, which thicken up under cold and often cause great damage to the motor.

The safe way is to ask for SUPREME AUTO OIL—it "Flows Freely at Zero" and leaves less carbon, owing to the fact that it is a Southern Asphalt-base oil containing no paraffine to gum, stick or thicken.

GULF REFINING COMPANY
PITTSBURGH, PA.

The Largest Independent Refining Company in the World



The Sign of Service

OUR COMPLETE STOCKS OF BOTH NEW AND RE-GROUND BEARINGS ARE AT YOUR SERVICE

A wobbly wheel, a growl in your motor, transmission or differential may mean a worn-out bearing.

Our charge for regrinding and guaranteeing worn bearings equal to new is very small.

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3. Instantaneous Exchange Service on Reground Bearings at small cost.
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5. Willing and courteous Bearing Experts.

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Boston, 93 Massachusetts Ave.
Detroit, 790 Woodward Ave.
Minneapolis, 926 Marquette Ave.
San Francisco, 715 Turk St.
Cleveland, 1836 Euclid Ave.
New York, 1790 Broadway.
Atlanta, 323 Peachtree St.
St. Louis, 2831 Locust St.
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Ahlberg Bearing Company
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As a concession to a popular prejudice that a tire must be guaranteed,

Kelly-Springfield Tires

are guaranteed, too, for 5,000, 6,000 and 7,500 miles, according to size and type, but that means nothing to you. So many of them go 8,000 and 10,000 miles that the "guarantee" needn't worry anyone.



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Executive Offices
Broadway at 57th Street
New York
General Sales Department
1900 Euclid Avenue
Cleveland, O.

RESILIENT POWER

Pick your way as carefully as you choose there's always a place where you're up against a bit of rough riding that will spoil your comfort and subtract from the life of your motor and your tires. It's here the power of the

[illegible]AGER SHOCK [illegible]BSORBERS

[illegible]s in its work. This power is in the springs—Springs of unusual resiliency, with 2½ *inches of action*. They make comfortable riding possible over the roughest roads. They minimize the unexpected shocks and jolts. They keep your wheels on the ground and help in quick starting and braking. **Sagers are used and endorsed by 18 Leading Car Builders.**

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Makes starting easy!
It saves the starter battery!
It lessens labor when cranking by hand!

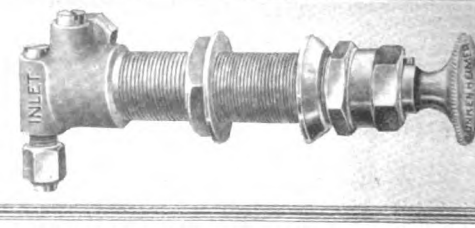
A stroke or two of the plunger puts a charge of atomized gasoline directly into the intake passages, from where it enters the cylinders, giving a power impulse on the first turnover.

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Easily attached to any make of car. Write for descriptive Booklet No. 513-BD.

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"QUALITY" 35-13-24
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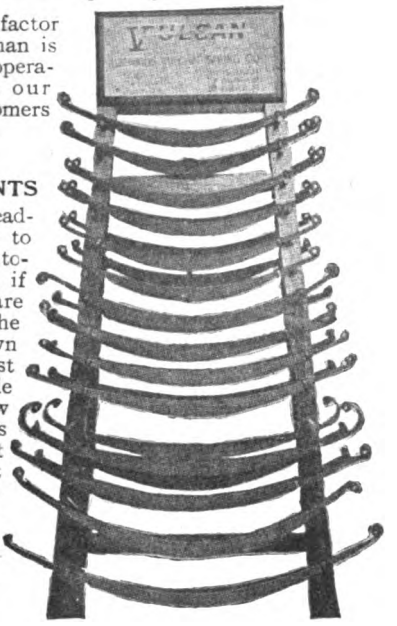
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is no stronger a factor in our success than is the hearty co-operation between our dealers, our customers and ourselves.

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—are going on steadily. They help to make new customers for dealers, if the new springs are good ones. The stand here shown is one of the best methods possible to attract new spring purchasers You can get it free, and with it the quickest deliveries and most thoughtful, helpful co-operation we know how to give. Write us about it.



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29 Caldwell St. Sumter, S. C.

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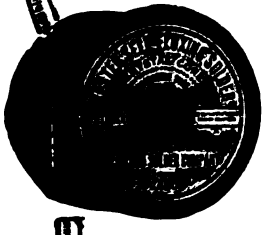


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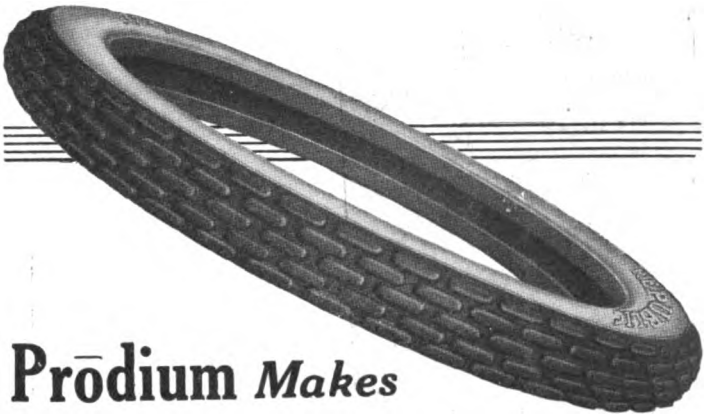
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Tires Better, Sales Bigger

Prōdium is to tires as vanadium to steel.

The Prōdium Process, exclusive with Republic, is the toughest compound known to tire-making.

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REPUBLIC PRŌDIUM PROCESS TIRES

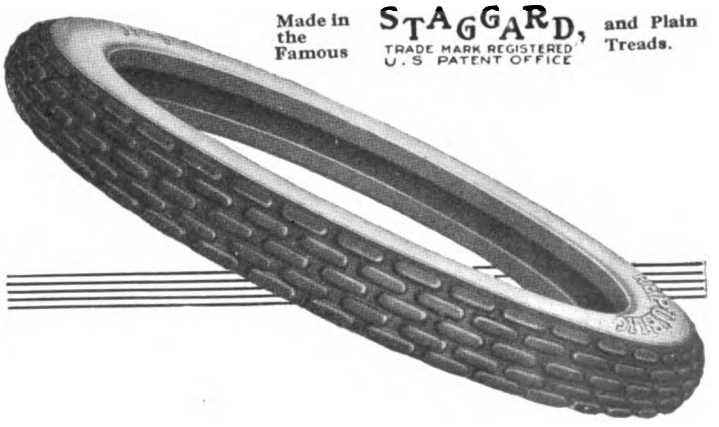
Republic quality has not only been bettered; the economic process and greater volume have reduced the price, so that now they cost practically the same as other tires.

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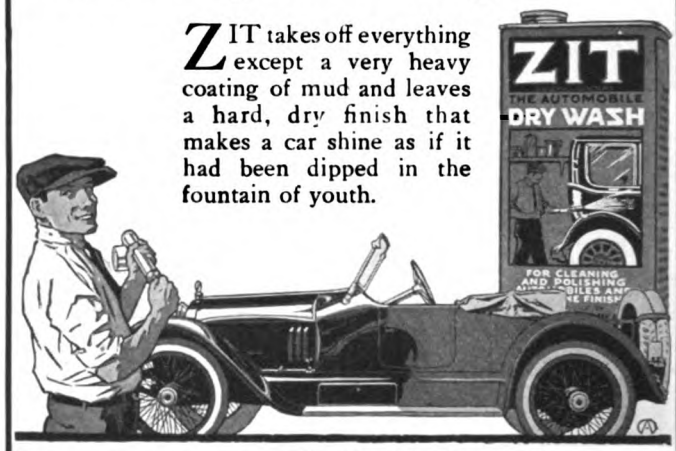
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ZIT takes off everything except a very heavy coating of mud and leaves a hard, dry finish that makes a car shine as if it had been dipped in the fountain of youth.



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has made good wherever tried. It won't freeze, evaporate or burn. Restores the elasticity and keeps the finish from checking and cracking. Good for furniture as well as cars.

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Genemotor

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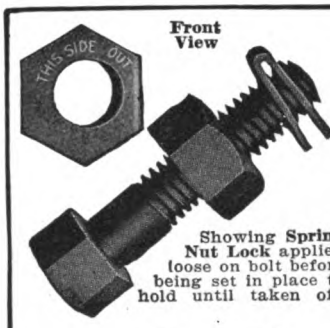
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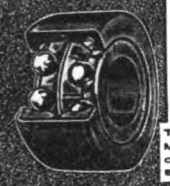
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Awarded First Grand Prize at the Panama-Pacific Exposition, San Diego, 1916, in competition with 35 other tires.

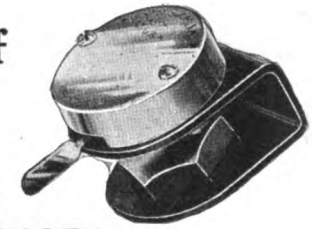
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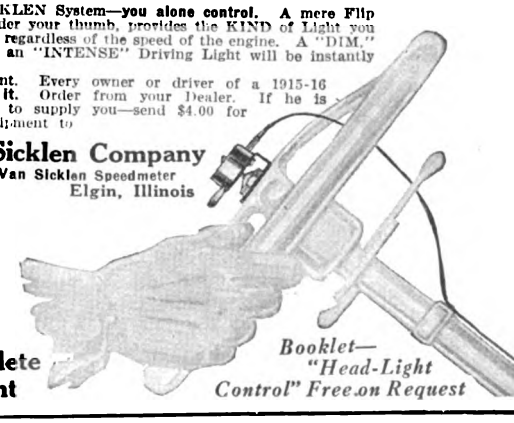
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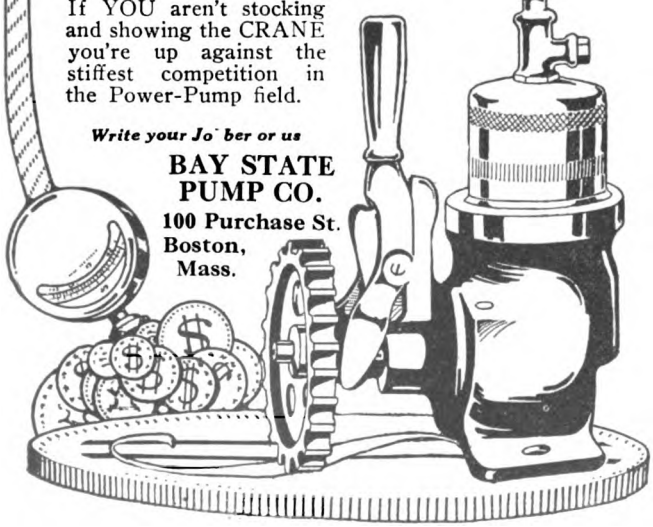
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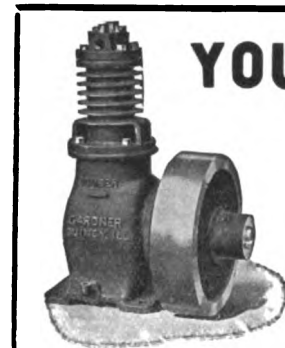
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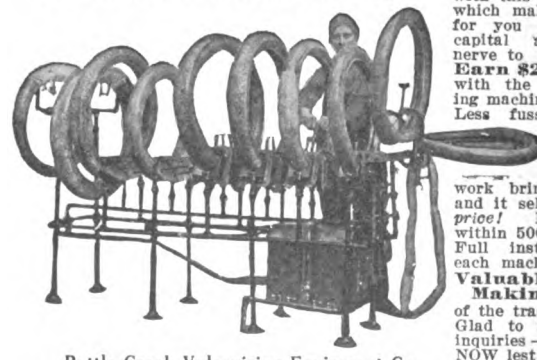
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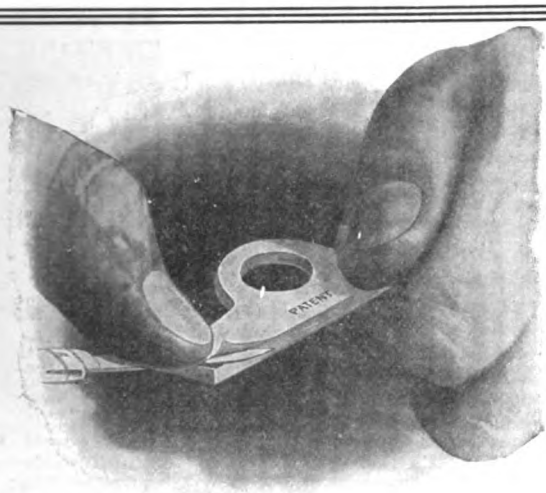
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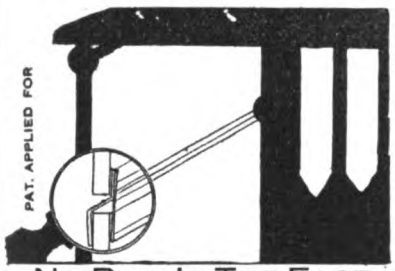
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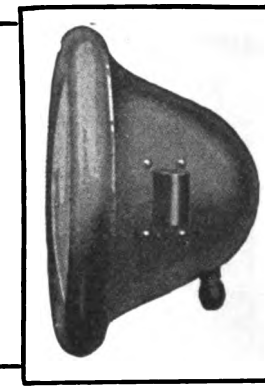
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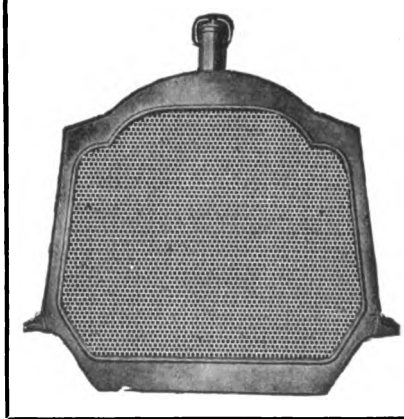


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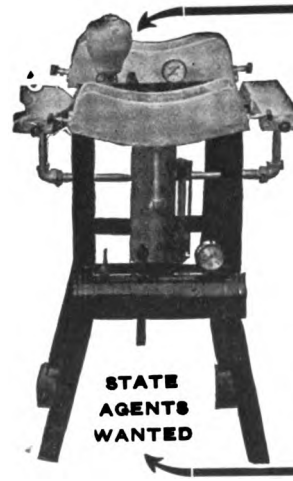
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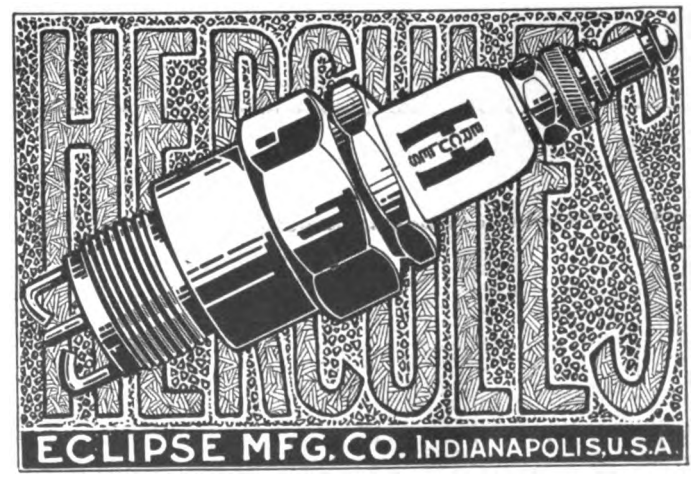
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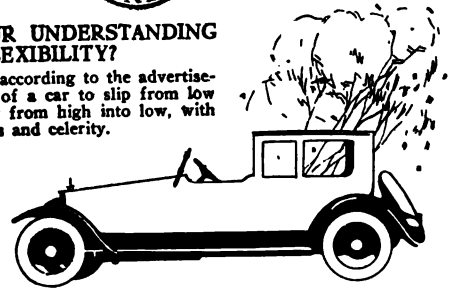


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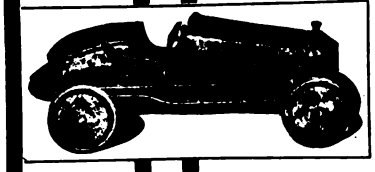
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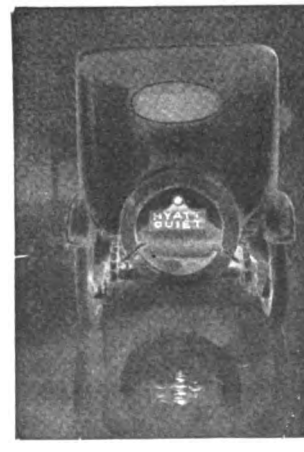
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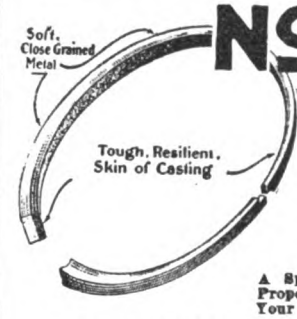
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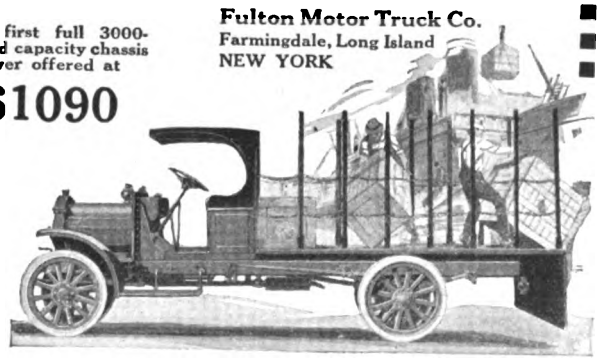
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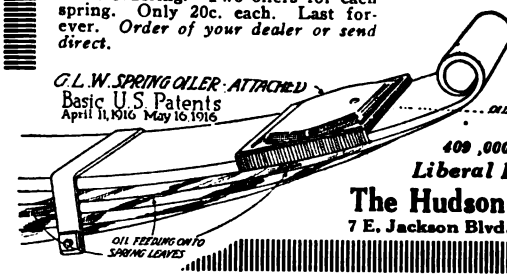
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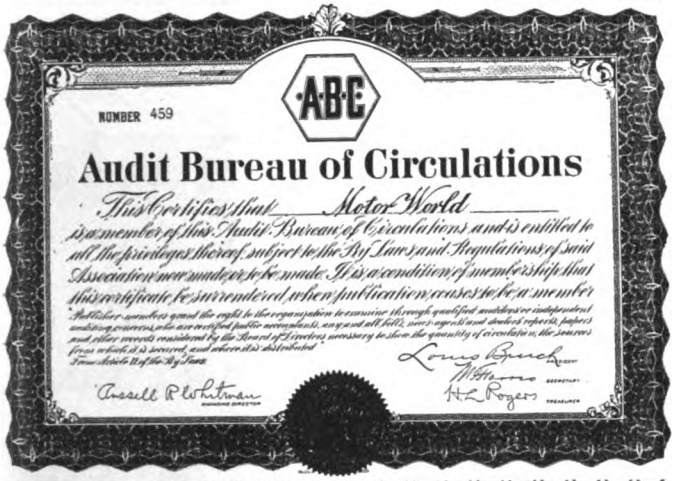
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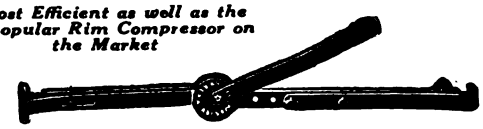
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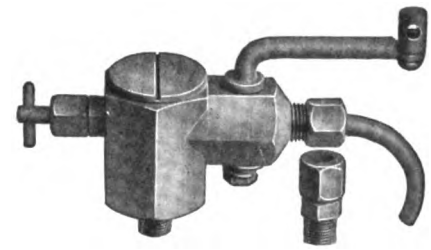
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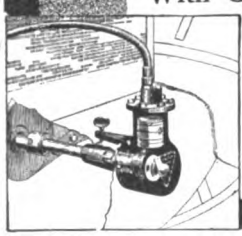
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34 by 4½	16.00	3.85	7.90	1.75
35 by 4½	16.50	3.90	7.90	1.80
36 by 4½	16.80	4.00	8.00	1.85
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Flanders 20	E.M.F. 30	Everett 30
Cole 30	Winton 6 cyl.	Mitchell
Palmer Singer	Regal	Velie
Matheson Six	Chalmers	Krit
Locomobile	Rambler	Oldsmobile
Peerless	Jackson	Paige
Lexington	Ford N.R.S.	Gleason
Black Crow	Royal Tourist	Cadillac
Studebaker	Case	Garford
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32 x 3½	14.70	9.80	2.25
34 x 3½	16.40	10.95	2.45
31 x 4	19.75	13.00	2.90
32 x 4	20.10	13.25	3.05
33 x 4	20.95	13.75	3.20
34 x 4	21.35	14.15	3.30
35 x 4	22.20	14.85	3.40
36 x 4	22.55	15.20	3.50
34 x 4½	28.60	18.50	3.75
35 x 4½	29.70	19.50	3.80
36 x 4½	30.10	20.00	3.90
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34 x 3½	9.60	10.45	2.35
31 x 4	11.45	12.60	2.95
32 x 4	11.95	12.95	3.05
33 x 4	12.45	13.50	3.10
34 x 4	12.95	13.95	3.20
35 x 4	13.45	14.95	3.30
36 x 4	13.95	15.50	3.35
34 x 4½	16.95	18.95	4.00
35 x 4½	17.45	19.45	4.10
36 x 4½	17.95	19.95	4.15
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30x3½	8.50	2.25	36x4	14.50	3.50
31x3½	9.00	2.50	34x4½	16.75	4.00
32x3½	9.50	2.50	35x4½	17.50	4.15
34x3½	10.00	2.55	36x4½	18.00	4.25
36x3½	11.25	2.75	37x4½	18.50	4.36
31x4	12.25	2.90	35x5	18.00	5.00
32x4	13.00	3.20	36x5	19.00	5.00
33x4	13.25	3.25	37x5	20.50	5.20

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32x3½	5.75	1.50	35x4½	8.75	1.80
34x3½	6.00	1.60	36x4½	10.00	1.85
31x4	6.75	1.65	37x4½	9.00	1.90
32x4	7.50	1.60	35x5	10.00	2.00
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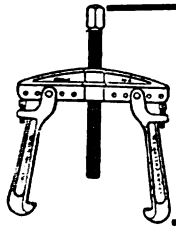
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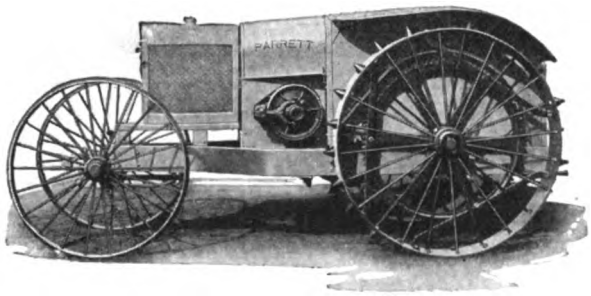
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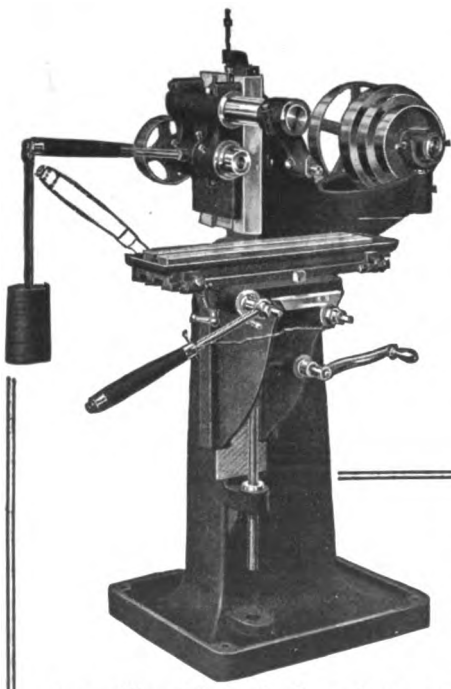
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Chains, Keys, Hand Milling Machines

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Cleans Refinishes
Polishes & Preserves the Body of Your Car from Bumper to Tail Lamp

MIRRO-LIKE AUTO-POLISH
AN AUTO-BODY POLISH FOR EVERYBODY'S AUTO

The attractive MIRROLIKE Counter Display

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MIRROLIKE cleans and polishes with **astonishing ease**, preserving the finish of your car, making dust and grease disappear like magic, producing a brilliant, **DRY**, lasting lustre.

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A Trial Will Instantly Convince You of Its Superiority

DEALERS: Send for Free Sample and Our Attractive Profit Proposition

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The Famous 43

There are just that number of steady selling, profit-making items in our catalog of

WONDER WORKER
Auto Specialties

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Write for our catalog now.

The Hall-Thompson Co.
Manufacturing Chemists
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What happened in Montana

The territory — fair
The dealers — good
but the car — right

ANSWER: 411% increase!—Montana dealers did MORE THAN FIVE TIMES AS MUCH BUSINESS IN 1916 as in 1915.

There's proof of Studebaker value for you—and what's more interesting to you, proof of what that value does to put money in the pockets of dealers who sell Studebaker cars.

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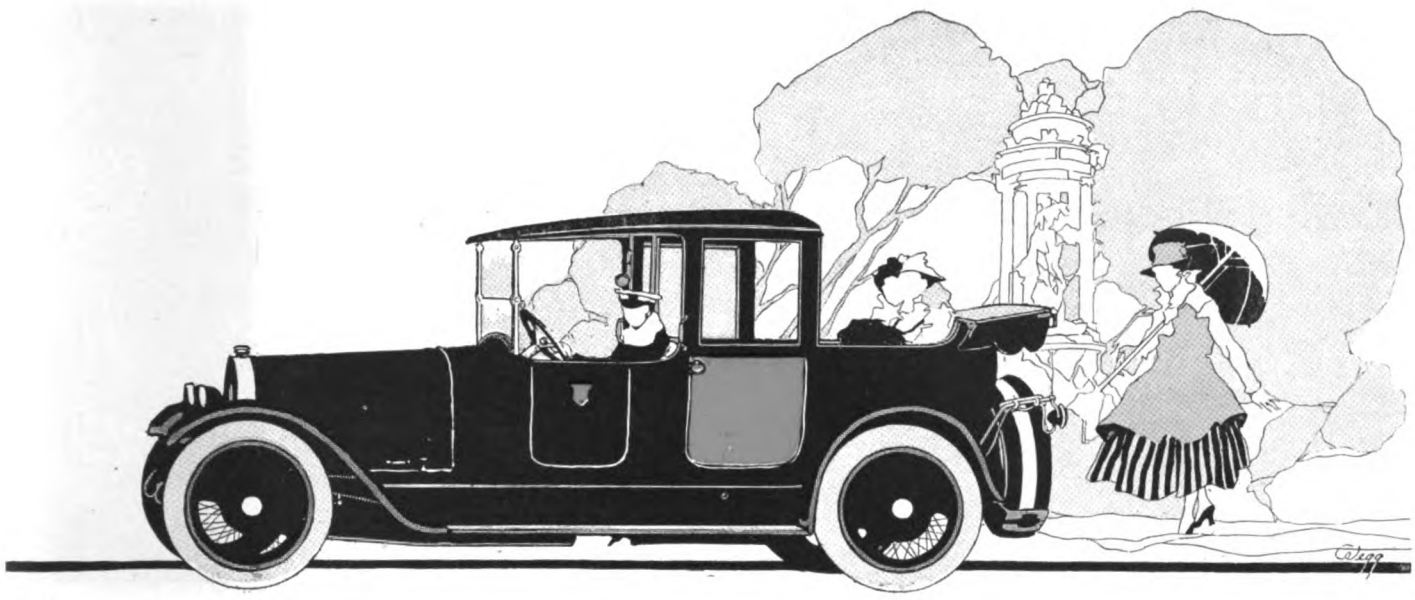
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South Bend, Ind. Detroit, Mich. Walkerville, Ont.

Address all correspondence to Detroit

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as well as a Source of Beauty

HOUK
QUICK CHANGE
WIRE WHEELS



Buyers of high grade cars insist on Houk Wire Wheels as a mark of distinction as well as a source of beauty. This is so universally true that to the popular mind Houk Wire Wheels have become the symbol of motor quality.

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Live dealers have stopped apologizing for out of date batteries, and have placed their battery business on a **solid** foundation by selling USL Batteries that deliver **satisfaction** and **service.**

If there is no USL agency in your town, write us for our proposition

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Service Stations in Principal Centers

Sold on a 15 Months Guaranteed Adjustment Plan



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Chart your Business—See page 20

94
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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume L
No 9

New York, February 28, 1917

Ten cents a copy
Two dollars a year

Hudson Dealers Made Big Money Last Year—Did You?

This year their sales will be larger, their profits greater. They start the year with 27,000 enthusiastic Hudson Super-Six owners.

No one questions the supremacy of this car. By winning all the worth-while records, by its appearance and quality, it has become the largest-selling fine car in the world.

Last year Hudson dealers could not fill the demand. Thousands of buyers waited months for deliveries. Many took a second choice car because they could not get a Hudson Super-Six.

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Do you want to take care of this over-flow trade by continuing to sell second choice cars?

Wouldn't you rather sell THE car that people WANT and will eventually buy—The Hudson Super-Six?

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HUDSON SUPER SIX

HUDSON MOTOR CAR COMPANY
DETROIT, MICHIGAN

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Advertisers' Index—Next to Last Page

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Stewart PRODUCTS
PRESTIGE QUALITY SERVICE SATISFACTION
U.S.A.

Stewart INSTRUMENT BOARD for FORD CARS

Biggest Opportunity Ever Offered to Dealers

THE new Stewart Instrument Board offers a bigger opportunity to dealers than any accessory ever presented.

This new Stewart Product opens a new field. Now every dealer can start right in and make a good profit selling accessories to Ford owners.

The Stewart Instrument Board in combination with the Stewart Speedometer sells on sight—every Ford owner wants one on his car.

Improves the appearance of every Ford. Gives the Ford Car a look of finished elegance.

Besides, it brings the Stewart Speedometer up into the correct position where it can be easily seen and read.

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The special Ford model Stewart Speedometer sells for..... $10

Special Ford model Stewart Speedometer with Stewart Instrument Board, complete. $11.25

It will pay dealers to see that every car is "Stewart-Equipped"

Stewart-Warner Speedometer Corporation
CHICAGO, U.S.A.

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Studebaker
Established 1852

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From the analysis given in the leading Automobile Journals of 179 makes of cars on the 1917 market—this fact is brought out.

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The Studebaker "Six" costs $1180. The few other Sixes on the 1917 market that equal it in POWER are such expensive cars that they average $4078 in price—$2898 more.

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STUDEBAKER

SOUTH BEND, IND. **DETROIT, MICH.** **WALKERVILLE, ONT.**

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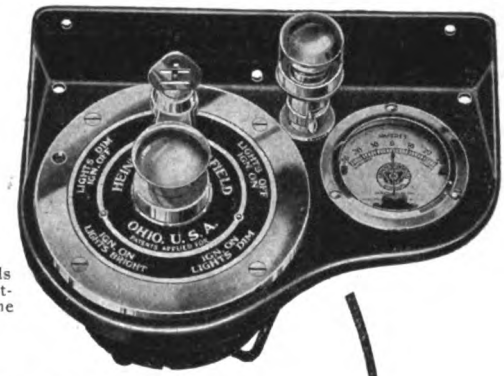
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ELECTRIC CRANKING AND LIGHTING
— FOR Ford CARS —
HEINZE-SPRINGFIELD

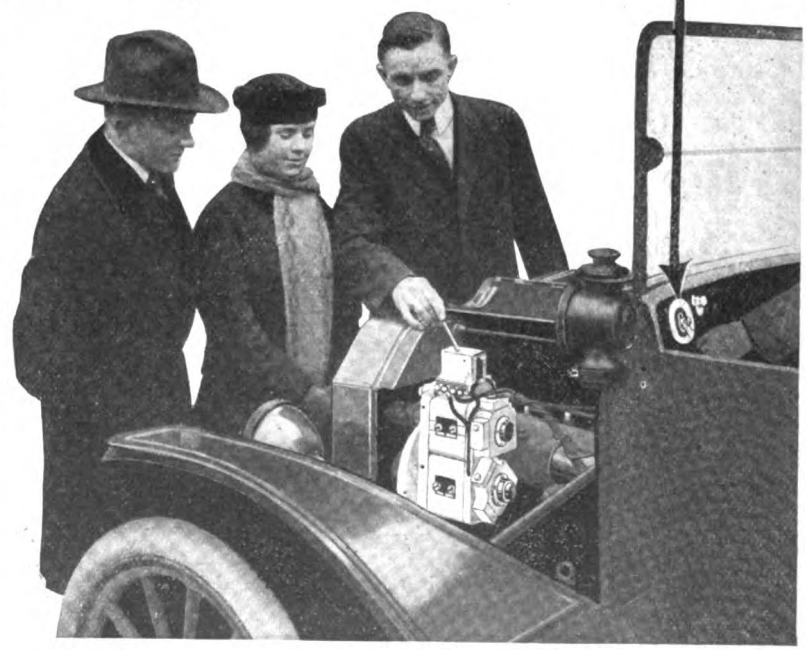
The "Built In" System that Does Not Lessen the Engine Power

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This convenient Dash Switch controls Heinze-Springfield Cranking and Lighting and Ford Ignition. To crank the car merely press center button.

Absolute Dependability *and* Simplicity



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List Price $85.00 f.o.b. Springfield, Ohio. Absolutely no extras to buy.

System includes Ammeter, Dash Light, Tail Light, and Lock.

(These alone would cost $10.25 if purchased separately)

THE
John O. Heinze Co.
Springfield, Ohio

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY

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"NORMA"
BALL BEARINGS
(Patented)

Because it is not easy to distinguish between engine failure and ignition failure—and because many a good engine has been condemned for faults of its ignition—and because dependable ignition counts so much toward engine dependability and car or truck service—the makers of engines, cars and trucks of the better class have standardized on "NORMA" equipped ignition apparatus. They have found that "NORMA" Bearings protect them against magneto bearing troubles. "NORMA" Bearings identify dependable magnetos—which in turn identify dependable engines, dependable cars, dependable trucks.

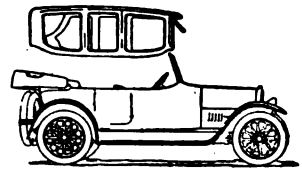
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Kissel's Original Idea That Changed the Motoring Habits of a Nation



Kissel's Original Idea That Changed the Motoring Habits of a Nation

From Boston

Kissel Motor Car Company,
Hartford, Wisconsin.
Gentlemen:

The ALL-YEAR Car is a very important adjunct to the Kissel line.

We frequently have people owning higher priced cars come in here and trade in their open cars in order to get something comfortable for winter use.

The fact that so many others have fallen into line and copied this feature speaks for itself.

We work steadily through the twelve months selling KisselKars instead of spending part of our time looking out of the window at the falling snow.

KISSELKAR NEW ENGLAND BRANCH.
(Signed) F. B. Holmes.

From Minneapolis

Kissel Motor Car Co.,
Hartford, Wis.
Gentlemen:

As a closed car, it is the prettiest car on the market. The parting line between top and body is perfectly blended, showing no irons or other signs of being convertible. The man who wishes a permanently closed job cannot find any objection on that score. It can be quickly converted into an open car, making it the ideal (closed or open) car. Another feature is the light weight and construction, which eliminates all noises which are so noticeable in other closed cars.

We understand it is almost impossible to keep other convertible bodies tight and free from noise, which makes it difficult to keep them warm; not so with the Kissel.

The above advantages, coupled with the mechanical superiority of the Kissel, make it the ideal ALL-YEAR Car.

CARLSON MOTOR CAR CO.,
By W. T. Carlson.

From Milwaukee

Kissel Motor Car Co.,
Hartford, Wis.
Gentlemen:

Selling ALL-YEAR KisselKars is not a difficult experience, it is a pleasure.

We figure we have no competition as to the demountable top, which is the only type of top that the particular customer is looking for, because it is a real summer car as well as a real winter car.

As a winter car, it has all the appearance of a solid body with no rattles, where convertible types of bodies with permanent roofs have unsightly fastenings for windows and supports. At the same time, if the user wants to leave his winter top on in the summer, by dropping the windows in the doors and using the ventilator in the front he can get all the air circulation that anyone requires. In fact, to demonstrate this, as you know, the writer made a 1300-mile trip last August during a spell when the thermometer was tied to 100 deg., and he did not feel the heat nearly as much as the rest of the parties in the tour experienced in their open cars.

When our competitors all admit we have "the only ALL-YEAR Car," why should we have any kick coming? Our only kick is in not getting enough of them.

THE KISSELKAR COMPANY,
(Signed) F. J. Edwards.

KISSELKAR

EVERY INCH A CAR

The ALL-YEAR Car

"When our competitors all admit that we have 'the only ALL-YEAR Car,' why should we have any kick coming?"

"We work steadily through the twelve months selling KisselKars instead of spending part of our time looking out of the window at the falling snow."

And so on from all parts of the country.

It is the same story with every KisselKar dealer—they have no slack months—no dead selling seasons—*no weather interferes with the right side of their ledger,* for the demand for the ALL-YEAR Car *never lets up.*

Their customers *do not* wait for Spring and Summer before purchasing. They buy their cars at all times, because it is the one perfected convertible car for *all* purposes in *all* seasons and *all* weather.

All of which means that with the ALL-YEAR Car Agency in your city or town *you have an all-year-around selling asset.*

We have some good territory open for the *right dealers,* where a continuous twelve months' demand for KisselKars insures a *365-day selling program.*

Full particulars on request. Write or wire today.

Kissel Motor Car Co.
Hartford, Wisconsin

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MOTOR WORLD for DEALERS, JOBBERS AND GARAGEMEN

Vol. L New York, U. S. A., Wednesday, February 28, 1917 No. 9

Safe Estimates—

66,000 Iowa Cars

The big, broad, prairie state where corn is king and the hog is queen has come through once more with a year of wealth. With the Iowa dealer it is not "How many cars can I sell?" It is "How many can I get?"

BY BERT N. MILLS

DES MOINES, IA., Feb. 24—Iowa's greatest year for motor car buying was off with a flying start when the eighth annual Des Moines show opened this week. A total of sixty-five cars, including three electrics, were shown, and there were nine accessory exhibits. The first annual Des Moines motor truck show, held on the same dates, helped to draw dealers from every county of the State and swell the attendance to an estimated 40,000, as compared with 32,000 in 1916.

Des Moines is the center of automobile interest in Iowa, although all of its distributers do not distribute to the entire State, and the Des Moines annual show is always the big automobile event of the year for the entire State because dealers from the entire State are attracted by the big, spirited and beautifully groomed show, which is perennially staged by the Des Moines Automobile Dealers' Association. The show was dressed this year in the colors of the Star Spangled Banner, with high lights of gold and floral frescoes.

Iowa bought 52,941 automobiles in 1916. At an average price of $800 per car, which is considered a fair average for a State of prosperous farm buyers, the State's 1916 bill for new cars was $41,600,000.

Iowa will buy 25 per cent more cars this year than last, in the opinion of all dealers and nearly all bankers. This will mean a total of 66,176 cars to be bought in the State during the year. Dealers and bankers say that even this estimated number will not supply the farmers of the State who are prospects.

Unparalleled prosperity in Iowa is the basis of the estimates for 1917 business by bankers and dealers. The Des Moines situation is shown by the increase in bank clearings from $281,949,456 for 1915 to $332,604,545 for 1916, and a proportionately greater increase already registered for 1917, as compared with the first six weeks of 1916.

Agriculture is the basis of Des Moines and Iowa prosperity, and Iowa corn is the yellow gold that buys the automobiles. At prevailing prices a twenty-acre field of corn—and that is a mighty small field in Iowa, producing 50 bushels to the acre—will buy one Ford car, with enough money left over for a starter and other fixings.

Iowa has the money to pay for the 66,000 cars which she is scheduled to buy this year. The coin necessary is only a small part of the wealth derived from the crops of last year. The Iowa Weather and Crop Service gives $597,165,673 as the total value of Iowa farm crops in 1916, as compared with $414,379,000 in 1915. If the State could buy 53,000 cars on the strength of the 1915 crop, is an increase of 25 per cent enough to be expected in face of a $200,000,000 increase in the value of farm crops?

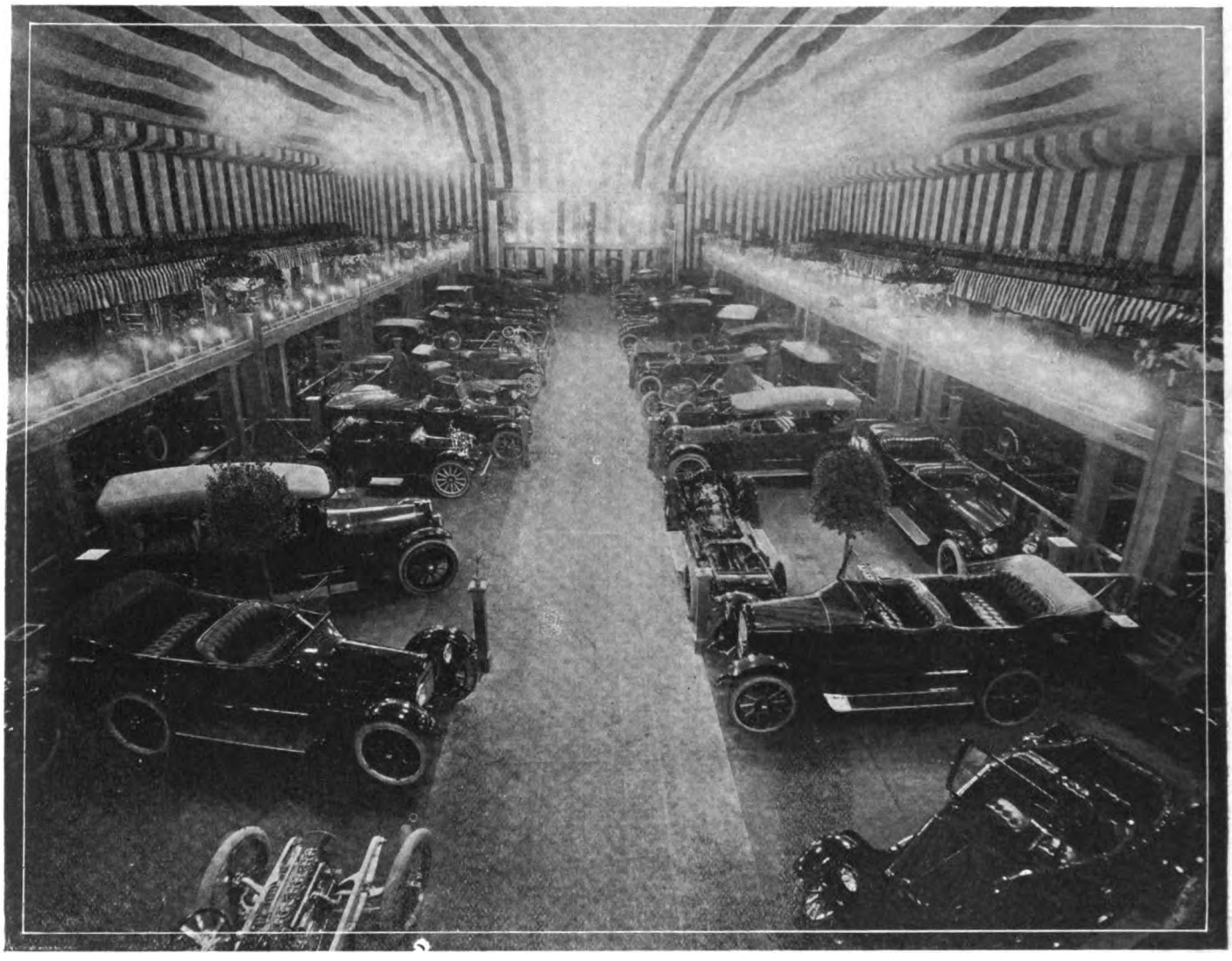
Iowa led all States last year in the production of corn and oats, and in the number and value of horses, hogs and combined livestock. The yield of corn for the year was 366,825,000 bushels, valued at $293,460,000, as compared with a yield in 1915 of 298,500,000 bushels, valued at $152,235,000. The increase in value of the corn crop alone, amounting to $141,000,000, would be enough to buy 150,000 automobiles at $800.

With a decrease of 8,000,000 bushels in the wheat yield the farmers still received as much for their 1916 crops as for their

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Des Moines this year dressed the Coliseum in the national colors. The exhibit divisions are re-used each year but are so fixed up that they have all the effect of new decorations

crop of 1915. The oats crop brought $26,000,000 more in 1916 than in 1915, with a total yield of 186,000,000 bushels.

Iowa ranks second in the United States in the production of hay, in the number and value of beef cattle, in the value of farm buildings and farm property, and in the area of improved land. The State ranks third in the number and value of dairy cattle and of poultry.

Crops Worth Nearly a Billion

Adding the value of dairy and poultry products to the value of field crops, the total income of the farmers of the State for 1916 was three-quarters of a billion dollars. The Iowa farmer never enjoyed a more prosperous year than 1916. Never before did the value of his field crops pass the half billion mark. His daily revenue was over a million and a half of dollars. No other farmer in any other country in the world ever enjoyed such a large and steady income. Iowa is the richest agricultural State in the Union.

Two elements entered into the making of a great year for the State in 1916. The first was the spirit of the Iowa farmer to strive for greater yields per acre each year. The second was the increase in prices. While his production was increasing the prices were advancing.

The price per bushel of corn in Iowa on Dec. 1, 1916, is given by the United States Department of Agriculture as 80 cents, compared with 51 cents a year before. The wheat of Iowa farmers advanced in price from 87 cents to $1.56 in the same time; his rye from 80 cents to $1.15; his flaxseed from $1.50 to $2.15; his oats from 32 to 48 cents; his buckwheat from 80 cents to $1.25; his hay from $8.70 to $9 a ton; his potatoes from 54 cents to $1.55 a bushel; his barley from 49 cents to 91 cents a bushel, and his sweet potatoes from $1.08 to $1.92 a bushel.

Livestock, Too, Goes Up

The same is true of livestock in Iowa. Milk cattle increased 14,000 in number for the year, and their value increased $1.50 a head, while the number of beef cattle increased 54,000 in number and 80 cents a head in value. The number of sheep increased 25,000; their value, 70 cents a head. The number of hogs increased 1,349,000 during the year.

Thus we see that Iowans have the necessary money to buy 66,000 cars this year. Who will do the buying? With 198,000 cars in the State there is one car to every two and one-half families in the State as compared with one to every seven families for the nation. Is the State of Iowa near the limit of its automobile capacity? Dealers and most bankers say no. Dealers, especially those who do business in the smaller cities and towns, report countless good prospects among farmers, retired farmers and merchants.

Prospects Still Are Plentiful

Many Des Moines distributers say they are doing practically all their business in the country and the small towns, and that there is no apparent diminution in the number of prospects.

The reason is that there is no car buying class. Prospective owners can be counted through the entire social scale. A Des Moines banker says his favorite waiter drives a car, and that in spite of the Iowa anti-tipping law. A

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Des Moines dealer goes him one better, and says he knows several waiters who are automobile owners. A large per centage of the mechanical employees on one of the local daily newspapers are automobile owners. There seems to be no limit to the number of families that can afford cars in Iowa.

Big Demand For New Cars

Moreover, it is pointed out that many of the older Iowa cars are going into the discard, and that there is a big and constant demand for new cars to take the places of those which were new in the years gone by. This process of replacement is in constant progress, and the replacements will grow in number with the passing years. The following table shows the wonderful automobile growth of Iowa since 1910:

Year	Number of Cars	Increase
1911.....	27,988	....
1912.....	44,188	16,190
1913.....	70,068	25,880
1914.....	106,087	36,019
1915.....	145,109	39,022
1916.....	198,050	52,941

In the face of such steady growth the estimate of 66,000 cars for 1917 seems moderate. It seems more so when one looks at the Des Moines show crowds and sees the hundreds of farmers who are coming to Des Moines from all parts of the State to get an early look at the 1917 models. Their pockets are literally bulging with money as a result of last year's crops, and a greater percentage of medium and high-priced cars will be sold in the State this year as a result, according to distributers in close touch with the pulse of the buying public.

Iowa Has No War Brides

So it is seen that Iowa has no war brides in the shape of munition factories, but that the war-time prices for farm products have had the same effect and that the farmers of the State have made so much money that they are in the market for thousands of automobiles.

The automobile seems to be the one great Iowa luxury, and with the State already in possession of one for each eleven of population, or for each two and one-half families, it appears that the end will not be until the number is one for every family.

The automobile has entered greatly into the life of Iowa, both in the city and the country, but especially in the latter. It has come to be the greatest influence ever experienced in the State to better the conditions of farm life. The farm is no longer isolated. The distance "to town" has been annihilated. The farmers and their wives can now go to town for the band concert 'most any night, and neighborly visits are easy of accomplishment.

It is believed that the effect will be to increase the farm population in Iowa and bring about an end to the considerable emigration of Iowa farmers to other States, and keep a larger number of Iowa farmers on their farms.

Des Moines Uses Reilly Code

Adapted Motor World's Plan for Staging Show and Effected a Big Improvement in its Exhibition

By Ray W. Sherman

DES MOINES, IOWA, Feb. 24—When a manufacturer has brought his line of cars to what he considers near-perfection and can't figure out any way to make them better he says:

"The new year's models have been improved and refined with great attention to appearance and the comfort and convenience of the user."

Which is just about what happened this year with the Des Moines show. The size of the building precludes much change in the layout and the show has always been good, so the dealers put on a few more finishing touches and are staging their usual good show.

As a starter in this "finishing touch" business the management took the Reilly Show Code that was published at the end of the 1916 show season, made several revisions so the code would apply locally, and distributed the code among the dealers.

What the Show Code Did

This code, as distributed, asked the dealers to see that their exhibit floors were kept free from discarded literature, that salesmen did not assume unsalesmanlike attitudes, that the spaces were not crowded, that attention was given to visitors and that numerous little things of a similar nature were done to make the show more attractive to the public.

All of these improvements have benefited the show greatly. The principal improvement not made, and which may be open to debate, is that of exhibit decoration. The dealers in meeting agreed upon a rule that no exhibit decorating should be permitted because it might work a hardship upon the dealer who did not want to decorate or who felt he could not afford to.

The opinion of the majority was that it would be best to leave the exhibits entirely undecorated—and they are. Most of them look quite bare. There is plenty of room in them, despite the small size of the spaces, which are 20 x 27; the general decorative scheme of the show is good, with its red, white and blue ceiling, as the illustration shows, but there are numerous "garagey" bare spots—as the illustration also shows.

Should Require Decorations

As to whether any dealer cannot afford to decorate, a survey of the Des Moines field reveals hardly a dealer, if a single one, who could not afford to decorate. A much better rule would be one requiring each dealer to decorate. In fact, a uniform set of decorations could be secured at a not great rental expense by the management. Grass or fiber rugs could be used to good effect if the dealers did not want to use rugs of better texture.

And wicker furniture works wonders with an exhibit, as was disclosed at the Minneapolis show.

There was, however, one touch of atmosphere that illustrates well what atmosphere means to a motor car exhibit. This was in the Chalmers exhibit of the Mackie Motors Co. The principal in this company is John H. W. Mackie, who recently blossomed from a territorial manager into a distributer.

Display a Car of "Class"

Mackie was not in the main show and hence did not come under the show anti-decorating rule. He had a 45 x 45 room in the front corner of the building, all by himself. In this room he placed numerous rugs and palms and so placed the cars that a good view of each was obtainable. He studied carefully the manner in which the cars were set.

The exhibit included a touring sedan and this was so placed that as a visitor entered the room he got a long-range view of this model in its best position. The result was interesting. "You would think we had never shown this sedan before," said Mackie. People were drawn to it. The sedan in an ordinary setting would have been just a car. As shown, it was a car of class.

Mackie's display was especially valuable to him in that he is right now engaged in making his entry into the Des Moines field himself and feels called upon for extra effort in putting the Mackie Motors Co. across.

Cover the Bare Spots

Part of his show force was a porter and this young man was instructed to keep an eagle eye on the floor and pick up every tiny scrap of paper, every match or cigar butt he saw, and the boy did his work well.

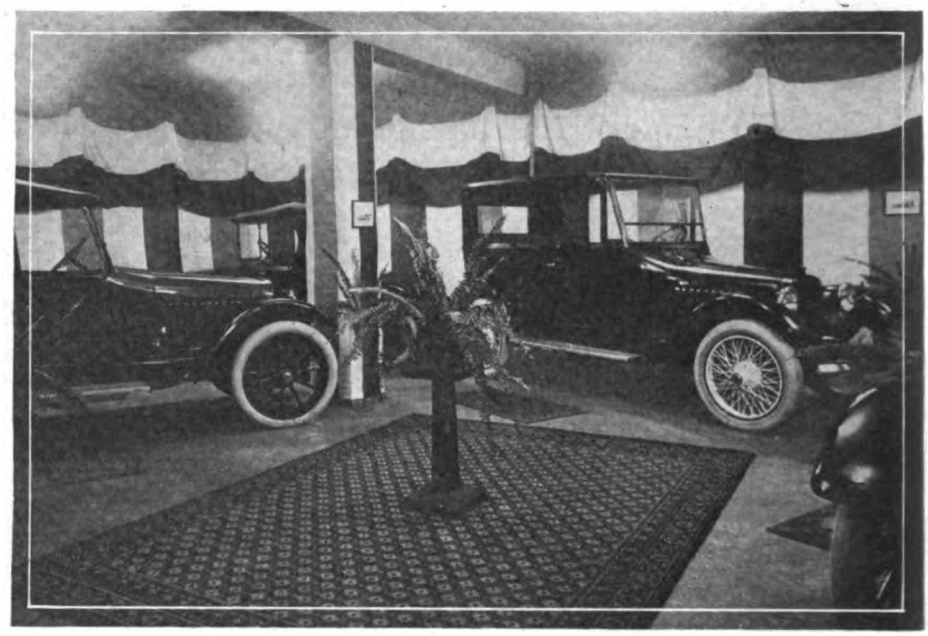
Furthermore, while smoking was permitted and did not prove so very obnoxious in the high-ceilinged room of the main show, Mackie did not permit it in his room where the ceiling is low and the ventilation poor.

Because the Des Moines show is so ideally laid out, because the exhibits are not crowded, because the dealers are such a harmonious whole and work together so well, and because the show is such a pretty show and a showy show, it would be interesting next year if each bare spot were covered with a series of rugs and some pretty furniture installed. The effect should be wonderful. It would be the only show in America where the whole thing approached the limit of in-

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What the show-goer saw when he looked through the door of Mackie's exhibit of Chalmers cars



And here is what he saw after the lure of the "atmosphere" had drawn him in through the door. This is the FIRST look, with the sedan as the centerpiece

tensive and real modern merchandising.

Furtherfore, speaking of all shows and not the Des Moines show in particular, the dealer should ask himself whether he is keeping up in the parade of progress. He may have kept up with the development of the car and the industry, but has he kept up with the development of the buyer?

The buyer doesn't care any more for uncarpeted tonneaus, rattley cars, open driving compartments and ugly bodies, and, by the same token, he does care for pretty bodies, handsome lines—and atmosphere.

Buyers are flocking around four-passenger roadsters and touring sedans. They are keenly inspecting the atmosphere that the manufacturer is putting into the product, and if what the manufacturer does in the atmosphere line appeals to the buyer may not the dealer add to his coffers by sticking in a little atmosphere himself?

Cars cost money and are in the luxury class, no matter how utilitarian they may become. Therefore, they demand atmosphere. Some will get it and some won't, but the cars that get it will be the leaders in their territories.

Motor Truck Shows Are Coming Back

THIS story is based upon a study of numerous shows of this season. They indicate that the truck show—once given up as not successful—is pushing itself back into the limelight. The movement is due to progress being made in truck selling and indicates a big future for these vehicles.

DES MOINES, IOWA, Feb. 23—The truck show, which every one thought had passed peacefully away some years ago, seems to be coming back. In fact, it's here.

And the return of the show is not something that has been brought about by promoters. The show is not being forced. It has pushed its own way back onto the boards.

All of this is part of the increase in the whole truck industry. It has taken a tremendous spurt lately and is going to be a bigger factor for reckoning than it has ever been before.

Each of the shows in the various cities has always had a truck or so stuck in a corner. The truck dealer—who generally sold cars also—didn't want the big vehicle left out entirely, so it was put in.

Minneapolis Had a Room Full

But this winter the display of trucks is given more attention. In the Minneapolis show there was a whole room full of them. In Kansas City a floor of the Case building was devoted to commercial vehicles. And in Des Moines this week a separate show is being run for trucks. It is in the Auditorium, a few blocks from the regular motor car show.

The managers of the Des Moines truck show enthusiastically aver that it is the only exclusive truck show held since 1906 or some such date; while their data may be somewhat clouded it doesn't matter much anyway for their enthusiasm is what counts.

George P. Hippee, manager of the Des Moines truck show, is one of many truck enthusiasts, and he says trucks are going to come forward with considerable speed from now on. He says the whole awakening is due to the little Ford hitch-on device that is produced in considerable numbers and makes a Ford into a truck overnight or in even less time than that.

Hippee says the Ford attachment has served as an entering wedge in hundreds of cases and has opened the way for commercial vehicles of all capacities. He cites an example:

Coming—The Ford Attachment

There is a drayage and warehouse man with 100 horses. He could use several motor trucks, but he has always hesitated to part with from $2,000 to $5,000 to get the vehicle he thought he would use. Furthermore, this investment would have been pretty much an experiment, and the warehouse man simply kept on using his hundred horses.

But—along came the Ford attachment! For about $800 the warehouse man could get one of these combination trucks. So he bought two—for about $1,600. And they did wonderful work. The warehouse

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man discovered for the first time just what havoc gasoline could work among his hundred horses. He became a motor enthusiast. He sold a few horses.

Then he bought some more Ford attachments and they did more good work for him. Then he began to investigate further the motor truck question. He found that he could use some bigger, heavier types, and he is adding several regular trucks. All the time he keeps letting horses go and eventually his business will be completely motorized.

Helps Sales to Farmers

This one instance had its beginning in the purchase of the first Ford attachment. And this first purchase was made because the device didn't cost much. Hippee says there are many such cases and will be hundreds more.

The attachment has also had a great deal to do with selling trucks to farmers. And this also has helped the sale of cars, for the farmer, who finds he can make his Ford into a truck at once, wants another car, and he generally buys something of higher price than a Ford.

Motor trucks are useful on the farm and the only essential in their sale is that the farmer be made to see their usefulness. The farmer, like the warehouse man, doesn't want to experiment with several thousand dollars, but he will take a chance with a few hundred, especially when he sees others doing the same thing.

There is one farmer in Iowa who is 7 miles from the railroad station. He raises hogs. Heretofore he has carted them to the station in a big farm wagon, and the ride has taken about two pounds off each hog. Just why a hog should be of such a temperament no one seems to know, but it is a fact that when the hogs make this journey in one of these Ford hitch-on trucks they lose no weight at all, and with hogs in the neighborhood of 12 cents this means about $600 saved for this farmer on one year's hogs. It almost pays for the truck.

As to this matter of hog shrinkage, it is said that through perspiration and jolting a hog will lose about 2 per cent from the farm to the station and about 15 per cent between the farm and the Chicago yards. And the station weight —not the farm weight—is the basis of sale. Each hog weighs about 250 pounds and the farmer raises 1000 which means 250,000 pounds of hog on the hoof. Two per cent of that is 5000 pounds of lost weight, and at 12 cents there comes the $600.



Palms filled the Des Moines truck show. The exhibits were nicely marked by the simple expedient of cardboard signs hung on a wire

Saving the Farmer's Hours

Up in Michigan is a farmer who used to get up at 11 o'clock at night in order to make the city market by horses at 4 o'clock in the morning with a load of produce. Now he doesn't have to get up until 2 o'clock. Also, after making the market at 4 o'clock, he goes home and makes a second trip for the later buyers. The motor truck makes money for him.

It is possible to cite a multitude of examples of how the motor truck is coming into use on the farm. It had been coming slowly until the Ford attachment appeared, and this has given it a big push.

This impetus to the truck business is the factor that has made this year's truck shows bigger than before and has produced truck shows in towns where there have never been any. In Des Moines there was no room at all in the car show, so the truck people staged an exhibit of their own.

Boston each year has more than an ordinary truck exhibit; several other cities have good displays, and this year Brooklyn is to stage a truck show the week following its regular car show. There is also considerable agitation among truck manufacturers for a revival of the truck exhibits once staged nationally in New York and Chicago.

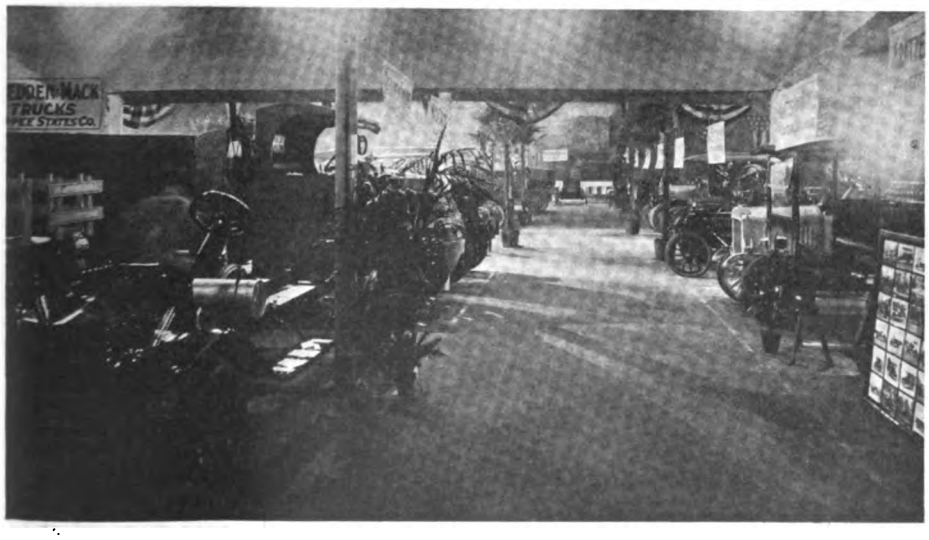
Will Effect Used Cars

This revival of interest also bids fair to have its influence on the used car business. Besides attachments for Fords attachments are being brought out for other popular makes of car. These will permit thousands of used cars to be converted into useful trucks instead of being hawked about for the low prices that used pleasure vehicles bring.

There also are coming into the field more exclusive truck dealers and, also, more dealers who, exclusive or not, are making more of a business out of trucks. In the past it has not been uncommon for the manufacturer to maintain a truck salesman in the dealer's field to assist in closing sales and keeping the work lined up. This has been an expense to the maker. But with the increased business in commercial cars the dealer is putting on truck salesmen and is handling the business without the necessity for as much assistance as he has required in the past.

What Circular Letters Did

The interest that dealers are taking in the light delivery vehicle, and especially in the Ford attachment, is indicated in a circular letter campaign



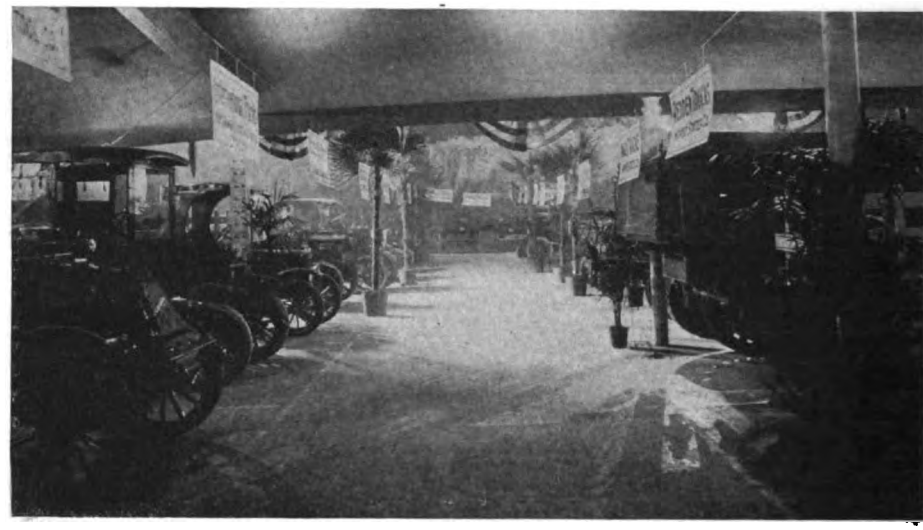
The truck show aisles, in Des Moines, were broad and the vehicles were displayed to good advantage

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used by Hippee. He sent two letters to 2700 Iowa dealers and received 1500 postal card replies, stating that the dealers are interested in his proposition.

Also, his circularization of business houses brought interesting and gratifying results. Some of the business houses even went so far as to thank him for having written to them.

As to the future of the truck dealer, opinion is that the bigger trucks will never be generally stocked. Obviously they could not be in smaller towns. But there seems to be a field for intensive work on the lighter types, and they may be handled by exclusive dealers or, at least, by dealers who maintain regular separate departments with exclusive truck salesmen.



The Des Moines truck show included big trucks and small, and both types were objects of interest

Show Success Despite Fight With Papers

Des Moines Fails to Support the Show so Dealers Spent Their Own Good Money

DES MOINES, Feb. 24—Because of a fight with the newspapers, the dealers in the Des Moines show have not run any newspaper advertising since the Chicago show. This applies during the week of this show.

Instead, they all pooled a certain amount of money and advertised the show in all the papers in Des Moines and the surrounding territory. The plan seems to have assured the success of the show, despite the fact that it is an unusual situation.

The trouble began when a newspaper said it would run "no more automobile bunk" and declined to give any support to the show aside from mentioning the dates.

Papers Refused Support

The dealers did not ask that publicity for the cars be run, but they did feel that the city's newspapers should support the show. They held—and rightly—that the show is a civic enterprise, that it brings business to Des Moines, that it helps build the city and that the newspaper that isn't a civic booster isn't doing all it can for its community. Their attitude was especially correct in that Des Moines is almost solely a distributing city and gets its wealth and its growth from the trade it draws from central Iowa. The show is one of the big events in the city's life.

The dealers were willing to concede that the newspapers were right in excluding a lot of the publicity that is handed out by dealers and manufacturers, but they were hurt when their show received a cold turndown. This developed the plan for co-operative advertising of the show and no individual advertising until the show was over. The show ads carried the names of the cars and the dealers, and the attendance is greater than it was last year. The ads were handled by O. R. McDonald, of the Herring Motor Co.

During the show most of the newspapers had a change of heart and gave considerable publicity to the show, and the situation as the show closed seemed on its way to a better arrangement next year.

Who Sells the Cars in Iowa

DES MOINES, IOWA, Feb. 24—Interesting data on the number of total sales in Iowa last year of the various makes of cars is shown from statistics compiled from state registrations by the Des Moines Daily Record. These show that of the total of 50,000 cars sold in Iowa last year there were 25,279 Fords. A table showing the sales of a few of the most popular cars is shown below:

Car	Registered
Buick	3,603
Cadillac	511
Chalmers	1,218
Chevrolet	1,667
Dodge	1,882
Ford	25,279
G M C Truck	7
Glide	86
Hudson	688
Jackson	119
Jeffery	430
Maxwell	1,937
Metz	94
Milburn Electric	15
Oakland	929
Oldsmobile	294
Overland	5,459
Packard	112
Paige	616
Pullman	94
Rambler	9
Reo	1,022
Republic Truck	47
Saxon	1,160
Stephens	22
Studebaker	2,065
Velie	450
Willys-Knight	413
	50,228

Half Snow, Half Bare in Iowa

DES MOINES, IOWA, Feb. 23—Winter business would be more of a problem in Iowa if there were more cars obtainable by the distributers. As it is, there is every prospect that there will be a shortage before the season is over.

There has been fairly good business south of the main line of the Illinois Central, which seems to mark the snow line. North of the I. C. there is heavy snow, and south of it practically none. The effect of snow on car sales is well known, and what can be done by a dealer who will try is equally well known.

Territorial road men tell stories of dealers who insisted on playing cards around the stove all winter and of other dealers who sold many cars by getting out and working. Noticeable among those who made money this winter by selling cars were men who each week read MOTOR WORLD'S Winter Business Department and coupled its ideas with their own energy and initiative.

Who Runs the Show

DES MOINES, IOWA, Feb. 24—There are 29 car dealers and 13 accessory dealers in the Des Moines show. Admission is 25 cents. Dealers may buy tickets at half price, 3500 of these were sold last year and this year the number is just about doubled. The show is staged by the Des Moines Automobile Dealers' Association and is managed by President Dean Schooler and Manager C. G. Van Vliet, the latter association secretary and a real estate man.

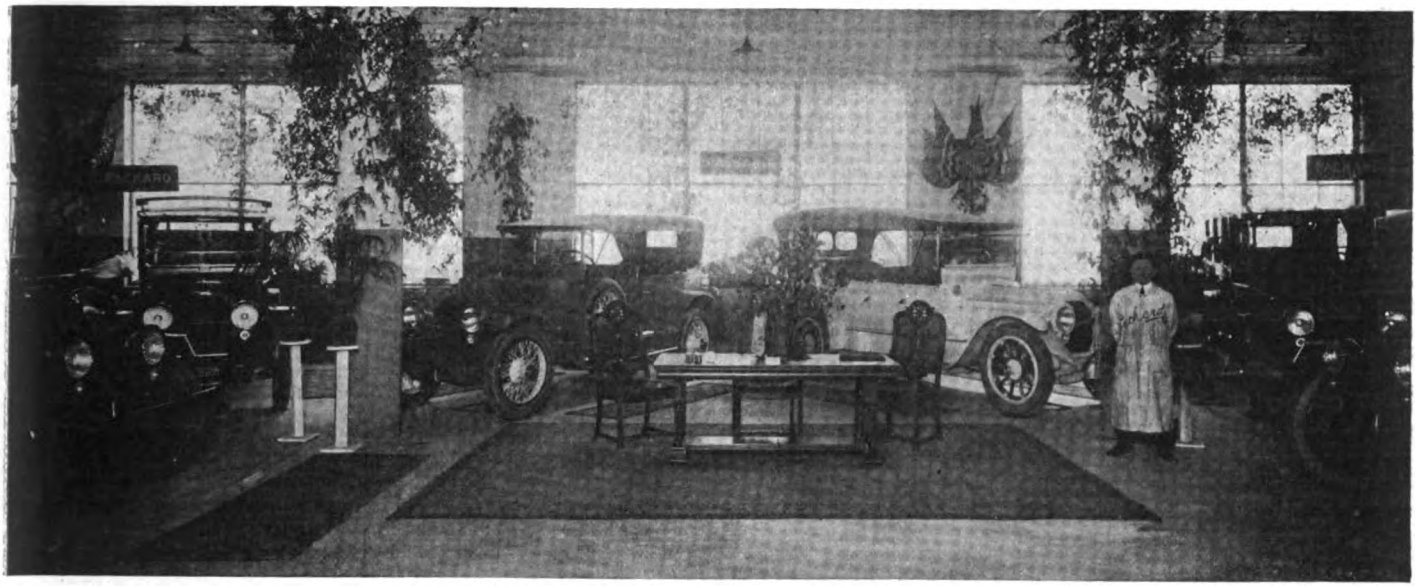
Iowa Wants a Lien Law

DES MOINES, IOWA, Feb. 24—The Iowa Retail Automobile Dealers' Association and the Des Moines Motor Trades Bureau are backing legislation for a model lien law in Iowa. A bill for this law is now before the Iowa legislature. In the senate it is known as Senate File No. 246 and in the house as House File No. 282. All Iowa dealers are urged to request their senators and representatives to favor this measure. It provides for a lien on cars for the benefit of dealers and garagemen who do repair work for the owners.

Kalamazoo Gets Roamer Plant

STREATOR, ILL., Feb. 27—The Barley Motor Co., which makes the Roamer car, will shortly remove its organization and plant to Kalamazoo, where factory quarters, aggregating 83,000 sq. ft. of floorspace, have been obtained. The new plant is part of the old Michigan Buggy plant.

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The Packard Missouri company studied Motor World's article on how to stage an exhibit and this is the result that was achieved. There are eight cars in the exhibit

St. Louis Show Run on a System

Exhibits are laid out according to plan; salesmen have rules for deportment; and the proper treatment of prospects is studied in St. Louis's First Winter Show

ST. LOUIS, Feb. 24—St. Louis has sprung full grown into the automobile show circuit. Though this is the 10th annual show here, it is the first one that has been held at the time of the other shows. All former shows were held in the fall, during carnival week.

The dealers realized that the fall was not the time to have the show, as it was at the tail end of the selling season. It was impossible to get the new models to display at that time, and the effect of the show was lost. Hence the date was changed.

It is a large show, and compares favorably with the national shows. The new Overland building, in which the show is held, is in the heart of the motor row. It is a six-story building, containing 132,500 sq. ft. of floor space, and every floor was in use. There were 61 car exhibits, 56 accessory exhibits, and 35 truck exhibits. Three hundred and forty cars were shown, of which 77 were closed cars, 95 touring, 60 roadsters, 23 chasses, 13 electrics and 72 trucks.

Pass Nuisance Is Settled

The attendance on the opening night was 15,200, but this was "wishers" night, and the majority came in on passes. The management realized that there were many that should receive passes, but were against the general pass system. They also realized that the opening night is ordinarily poor. Hence they compromised, and issued 50 passes to each exhibit space for the opening night, giving out a total of 12,000 passes. These were given to employees and friends of the exhibitors.

In addition to settling the pass nuisance once and for all, the show received a lot of advertising that helped the attendance throughout the week. For the balance of the week, admission could only be gained by dropping a 50-cent piece in the box, or by a special pass from the manager himself.

How Spaces Are Alloted

The general arrangement of the exhibits was good, because there was plenty of room, and a definite plan was followed. The exhibitors made bids for spaces—one, two or three, as they wished. The floors were then laid out, with 3 three-space men, 4 two-space men, and the balance one-space men to each floor. The three-space men then drew for choice of position. Then the two-space men, and the one-space men drew for their spaces. By this every exhibitor received the amount of space desired, but more important, had no grounds for complaint of partiality in the allotment.

The decorations are simple, and serve to remove the bareness and commercial appearance of the building. The columns, door casings and side walls are covered with trailing smilax, finished with palms, potted plants and bay trees. Each exhibit was clearly marked from its neighbors by a vine covered lattiswork fence about 4½ ft. high. This fence did not interefere with the general view, but made each exhibit a unit.

The exhibits are marked with the names of the cars displayed, and no reference made concerning the dealer staging the exhibit. In those cases where several makes are displayed in the same exhibit, the models of each make are grouped, and the sign hung over the group. The dealers here believe that the public comes to see the cars, and not the dealers, and hence have emphasized the car name.

Dealers From 13 States

The number of dealers attending indicates the scope of the show. On Tuesday, over 1200 dealers from 13 different states registered at the managers' office.

It is also a merchandising show. The people have been waiting for the show to make their decision on the car they would buy. For this reason the dealers have spent more than the usual care in making ready for the show. Here is what a few of them have done.

H. W. Spalding, vice-president of the Packard Missouri Motor Co. read the MOTOR WORLD article on "How to Stage a Show." He called his salesmen to-

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gether, and read the article to them. With that as a basis, they planned their exhibit.

The cars are arranged in the form of a hollow rectangle, with table, chairs and plants in the center. At each end, extending down the aisle, but pointing somewhat toward the center of the exhibit is one of the cars displayed. These act as feeders to the exhibit, and people passing down the aisle are just naturally shunted into the center of the exhibit. And that was where Spalding wanted them.

Rules for Salesmen

But getting the people into the exhibit is only a small part of the show. The impression made by the salesmen is as important. Hence a set of rules for the salesmen was drawn up. They are:

1—All hats, coats, etc., must be left in the checking room downstairs.

2—No salesman must lean on a car, rest his foot on the runningboard, and must stand at attention.

3—Prompt attention to every visitor entering the exhibit.

4—No smoking.

The "Bell Hop" System

Packard also uses what may be styled the "Bell Hop" system of attending to prospects. One salesman is on duty at each end of the exhibit, near the "shunt" cars. The instant a prospect enters the exhibit, he is received, and another salesman takes the front position. By this all the salesmen are not standing out in front, more conspicuous than the cars, yet all the prospects are cared for.

A follow-up system is also used. Each morning at a meeting of the sales force, the prospects of the day before are discussed, a prospect file card filled in, and the regular system followed.

This is merchandising, not merely placing the cars any-old-way on the floor, and assuming the you-can-look-if-you-want to attitude, but merchandising. Many others are doing the same thing in other ways.

The Cadillac Automobile Co. of St. Louis has a sales force meeting every morning during the show. In addition to cleaning up the prospect list, each of the salesmen finds out what his prospects have said to the others. Then the next time the prospect is met, the salesman knows where the prospect stands.

Learning to Save Prospects

A general discussion then takes place, and the rough edges of the exhibit are smoothed out. For example, Monday night, T. H. Byrne, the assistant manager, was talking to a lady, and showing her a certain car. At the far side of the exhibit a salesman was demonstrating the one man top. This lady saw the top go up two or three times, became interested, and went over to the car. In the rush, someone got Byrne, and he lost his prospect. The result was that at the next meeting, orders were issued that no one should demonstrate the top unless on request.

Again, a lady was in one of the cars, and tried to shift the gears. Of course, with the engine idle the gears stuck and could not be shifted. The lady left the exhibit convinced that she could never drive a Cadillac because she was not strong enough to shift the gears. At the next meeting this was brought up. As a result, all misunderstanding is forestalled by the simple statement that gears do not shift readily with the engine idle.

Studebaker has a man from the factory with the gold car. This man, however, does more than explain the gold car to the public. In the morning he is pumping the salesmen full of selling points on the Studebaker. These are used next day at the show.

These examples are but a glimpse behind the scenes at the show. But they serve to show that the St. Louis dealers are more than order takers.

Giving the Cops a Chance

Another feature of the show that should be at every large show is the police exhibit. The committee realized that most of the traffic trouble was the result of misunderstanding. They realized that a crowded corner with jammed traffic and a busy cop is no place to discuss traffic rules. Hence the Safety First Squad of the police department was invited to give a traffic exhibit. They were given a preferred space on the second floor.

Here, by means of photographs, posters, diagrams and literature, the traffic officers themselves explain all the points of St. Louis traffic. It is common ground. Drivers from the country and drivers from the city want to know, and the officers are there to tell them. The exhibit cannot but help to clear up any misunderstanding between the driver and the police in the city.

The show is given by the St. Louis Automobile Manufacturers and Dealers Association, of which F. W. A. Vesper, Vesper-Buick Automobile Co., is president. The committee comprises Joseph A. Schlecht, chairman; H. W. Spalding, vice-chairman, and Jas. D. Cathey, W. L. Johnson and W. S. Roberts as members. Robert E. Lee is general manager and executive.

St. Louis To Double Business

That is in Cars but Truck Sales will go up 200 per cent—Industrial Increase in 1916 was 30 per cent

ST. LOUIS, MO., Feb. 23—St. Louis pleasure car dealers expect to do 100 per cent more business in 1917 than they did in 1916. Truck dealers expect to do 200 per cent more than in 1917. This is not betraying any trade secret, for they are all very open and above board in their predictions. Some individual dealers expect to increase their business in this proportion, others expect that the trade as a whole, including new agencies, will increase that much. There is not a man among them who is not an optimist as to the 1917 trade.

Just how many machines this will be is another question. That is a very difficult question to answer because of the peculiar limitations of the St. Louis trade

The Men Who Staged the St. Louis Show



W. L. Johnson — *Robert E. Lee, Manager* — *H. W. Spalding, Vice-chairman* — *F. W. A. Vesper, President* — *W. S. Roberts* — *Jas. C. Cathey* — *Jos. A. Schlecht, Chairman*

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territory. Roughly the territory is considered to be the eastern half of the state, Southern Illinois, Western Kentucky and Western Tennessee. Few local distributers have less territory than that. But some local agencies and branches control Kansas and Oklahoma, as is the case with the Packard. The Jackson and Allen cars are sold in Arkansas through the Mound City Buggy Co., while the Oakland agency here includes Arkansas, Louisiana and Mississippi. The recent tendency appears to be to give larger territory to St. Louis.

Two years ago it was estimated that the St. Louis sales outside of Missouri would equal the Kansas City sales in the state, making the sales in Missouri a fair test for the St. Louis sales. That was not the case last year and will be a less true test this year because of the greater demand for cars in Arkansas, Tennessee and Oklahoma and Kansas. Also the various territories that include Mississippi and other southern states.

But using the local figures for a guide, here are the facts as shown by license sales:

	1914	1915	1916
St. Louis	10,450	14,246,	17,848
Missouri	54,480	76,460	107,860

The city figures are admittedly of little value, even officials say that, because the license is not well collected and so many vehicles that, in fact, belong in the city are placed under cover of a suburban town license by trick of residence or other way.

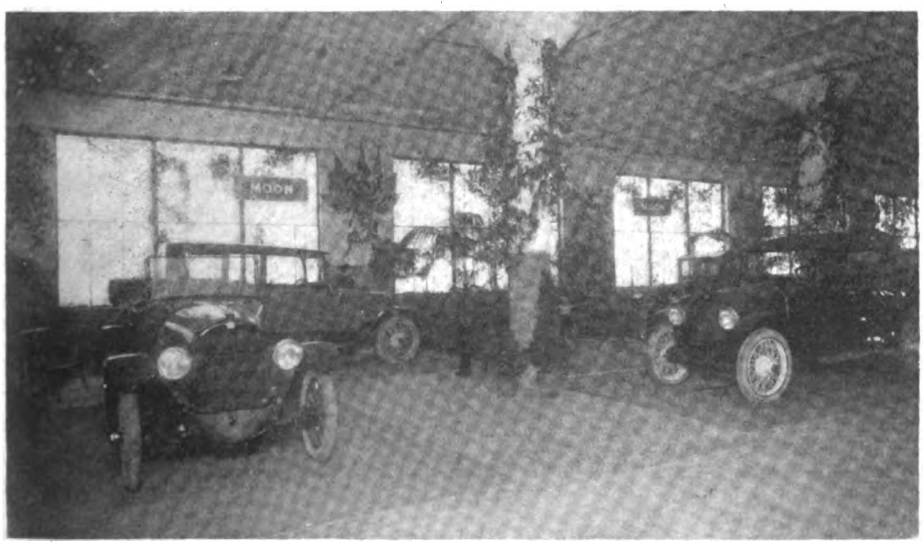
To Issue 150,000 Licenses

The state department is prepared to issue 150,000 licenses this year. So it would appear that others share the dealers' optimism when they place Missouri sales at 50,000 vehicles. If Missouri buys 50,000 vehicles this year, St. Louis would sell, wholesale and retail, 65,000, say a new vehicle business of $45,000,000. That sounds big, but it would only be placing the automobile business on par with other St. Louis jobbing business. One of the most conservative dealers in St. Louis places the figure at 45,000 cars.

Be it known that St. Louis is a merchandising city. Eugene Smith, secretary of the Merchants Exchange, through which grains and other farm products are sold, is the official statistician of the city. His annual report carried the only figures worth while. He gives these figures for the 1915 jobbing business in several lines: Dry goods, $75,000,000; groceries, $65,000,000; boots and shoes, $55,000,000; lumber, $40,000,000; woodenware products, $20,000,000; electric industries, $18,000,000; soaps and candles, $16,000,000; tobacco and cigars, $55,000,000; hardware, $50,000,000.



This is where the St. Louis show was held. It is the new Overland building at Twenty-third and Locust Street, and is in the heart of Motor Row. Every floor was used. Overland had an exhibit in that part of the ground floor where the windows are painted white



The Moon is a St. Louis car, and could readily have loaded its space up with different color cars, or different models. However, it chose to have an open exhibit, and the results are certainly pleasing

Industrial Increase 30 Per Cent

Smith's figures for 1916 have not all been tabulated, but he says that the increase will not be less than 30 per cent over 1915 in any of these lines and that in hardware and electric supplies and shoes the figures will run higher. He says he can make no comparison yet as to farm implements, vehicles and automobiles, which were grouped in 1915 and totaled at $20,000,000. He said the increase in this line was "running out of reason."

This increase of jobbing trade is one reason why St. Louis automobile men expect to sell more machines than ever before. Other reasons are:

BANK CLEARINGS

1914	$3,888,851,608
1915	4,153,529,336
1916	5,370,977,392
January 1916	429,456,675
January 1917	590,495,304

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The prosperity of the workers in this community always is reflected in the shoe making business. Probably 60 per cent of the shoe trade here is home manufactured and the firms that have show factories in this city make one-third as many more shoes in the nearby towns which are not entered on the local business list. Here is a statement of three factories; they are cited merely to show how this industry is improving, as shown by shipments for January and December last, compared with a year ago, which are the first two months of the fiscal year:

This year	$8,239,825
Last year	5,489,876
Increase	$2,794,867

Beer is another prominent industry and it amounts to about $35,000,000, out of which more than 7,000 persons get a living wage, and the breweries here are not "scared to death" by prohibition, for they have been getting ready for that day for a number of years. Of course, it would hurt, but the properties would survive.

Comparatively new industries here are heavy cast iron machinery, which is growing into a good total. The electric manufacturing business is going ahead rapidly. It was hampered for some years because two of the largest concerns were tangled in patent litigation, which is settled and they are forging ahead.

Also the automobile equipment business is employing a constantly increasing number. This includes two new tire concerns, a number of body factories, the outgrowth of the old buggy making business and some specialty factories.

The building campaign for the year is set for heavy increases by reason of a school building campaign for which $3,000,000 in bonds has been voted and contracts already let for office buildings.

Agriculture is Prosperous

The nearby country is largely agricultural. Last year was the most prosperous, by reason of selling prices, ever recorded, despite rather short crops. The planting of winter wheat has been 10 per cent greater. At this time the prospect is good except for moisture and it is too early to worry about that.

The Illinois coal mines are working to capacity at high prices and the Missouri lumber and zinc and lead regions are enjoying excellent prosperity. The only drawback is a need of labor. As to the Southern States attached to this territory: In Oklahoma and Kansas oil and wheat millionaires are buying high priced cars.

As to trucks: The dealers say that the factories are keyed up to high production because of war orders and now must find a new field. So they are going to increase the selling power in United States agencies. As a matter of fact, truck selling here is chiefly a question of energy and demonstration. The local dealers are going in strong for both.

The opening of a free bridge across the Mississippi has opened a vast field. Previously the cheapest toll across the river for an automobile was 70 cents a round trip; heavy vehicles more. As a result the merchants would wait until the freight cars were brought across; even when switching, tonnage was charged and terminal blockades delayed shipments.

Now coal and other firms are negotiating for trucks to haul much of this freight across the free bridge built by the city. One coal firm is negotiating with a local truck dealer for a dozen of his highest priced trucks and an even larger fleet of trailers.

The Real ST. LOUIS TERRITORY

HERE is the biggest fly in the ointment of the St. Louis dealers, also their chief handicap. It applies equally to Kansas City and every jobber in St. Louis and Kansas City will tell you it is true. In fact, it seems that everybody knows it but the men who divide territory for the automobile manufacturers.

The manufacturers arbitrarily divide Missouri in half north and south. The trade does not divide that way, and such a division hurts both St. Louis, which city gets the east half, and Kansas City, where dealers get the west half.

The trade of the State is divided almost equally, as to territory, between the two cities, but not in this way.

The trade follows the railroads and the line is one drawn diagonally across the State, beginning at a point on the east side, 50 miles south of the northeast corner, to a point on the west border, 50 miles north of the southwest corner.

In this way the Chicago-Kansas City railroads and their immediate territory is thrown into the Kansas City district, and the St. Louis roads to the southwest and immediate territory are thrown into the St. Louis district. Thus Hannibal, on the Mississippi River, which appears to be St. Louis territory, goes to Kansas City, while Springfield, which is in the southwest corner and on the map looks like Kansas City territory, comes to St. Louis.

The trade follows these lines and the efforts of the automobile manufacturers to change the natural routes have only served to bring added expense, confusion and discontent.

The territory on the mid-State railroads between St. Louis and Kansas City, is no man's land, where there always is a trade war. A St. Louis automobile jobber once said that he would give $5,000 to any man who would convince his factory that this was true. He predicted that the Kansas City distributer would be as generous.

W. L. Johnson, spokesman for the local Ford Dealers' Association, says that the 16 Ford dealers in this city have contracted to sell 5000 cars against 2600 for the last fiscal year. The dealers are now ahead of this, and he thinks they will sell many more. They are taking their pick of prospects, and this dealer was selling to about half of those who wanted to buy. He thought the others were doing about the same.

"We have not data," he said, "as to what proportion of these machines is going into commercial use. But we consider every store that maintains a delivery service a prospect. Likewise, we consider every man who earns $100 a month a prospect, if he and his family have any idea of wholesome thrift. Hundreds of families with a smaller income are using Fords intelligently. The last two machines I sold were to brewery employees who live on their earnings and savings." The Ford assembly plant here is prepared to handle 22,000 cars.

At the Chevrolet salesrooms the same was said. Cathay also repeated what the Ford spokesman had said as to another feature: "The owner of every large car is a prospect for a low-priced car, for reasons of economy and convenience. Before I became the head of this business I ran a hotel. The other day my cook in that hotel bought a car."

There are a number of reasons why country people are buying cars. Here are a few:

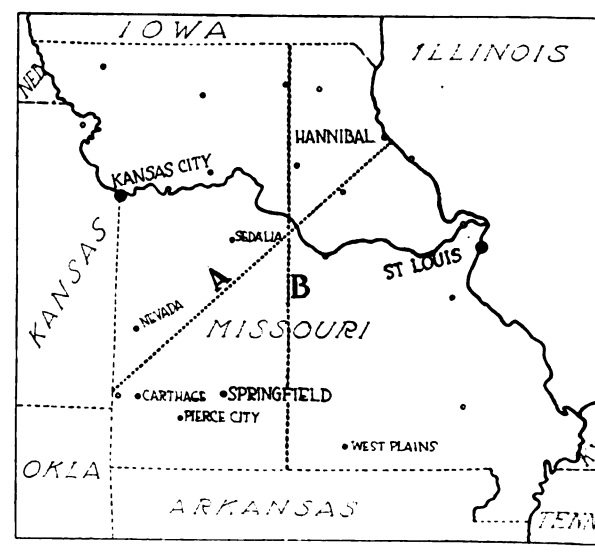
Because they want them and because they are prosperous.

Because the State and city merchants are behind a consistent, well directed good roads campaign.

Because the young folk are demanding them or they will go to the cities.

Because there are cheaper, dependable cars than previously.

Because, and do not take this lightly, the Allies have bought 230,000 horses through the East St. Louis horse and mule market since the war began, and have paid more than $42,000,000 for them, an average of $190 per animal.



Missouri is divided diagonally by the dealers though the manufacturers persist in dividing it horizontally, which is wrong

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A Talk on Economy

By Frank Briscoe, general manager of the Briscoe Motor Co., in that company's house organ, the Briscometer. It is a sane thought in our time of prosperity and it applies to the salesroom and garage as well as to the factory.

IT is now time we began to consider the Economies. This is addressed to everyone in the Company, from the President down to the office boys.

When a concern starts with a considerable capital, or all at once expands, and everybody is strenuously engaged in hurrying up to buy equipment and material, and to get out goods, our minds are all turned toward getting, GETTING, G-E-T-T-I-N-G—which means spending, SPENDING, S-P-E-N-D-I-N-G.

A new department started. We buy a lot of desks and tables, typewriters, dollar-inkwells and printed forms. In the factory we are struggling to get the work through. We spoil a lot of stuff. Never mind—throw it away and start some more. Hurry up! Hurry up! Spend money!

In a remarkably short time this gets to be a habit. Even where there is no need of spending, we spend. We do not stop to count the cost, because our whole mind is fixed on getting things rolling quickly, and on spending, SPENDING, S-P-E-N-D-I-N-G.

After things get rolling—as things are now beginning to do—then, unfortunately, it is very hard to get rid of the mania for spending. Spending money is the easiest habit in the world to acquire; the hardest to get rid of.

Wasting is Easy

Because we are a "Six Million Dollar Corporation" it is easy to think—or to feel without thinking—that the wastage of a dollar here, ten dollars there, fifty cents somewhere else, means nothing. What is an extra inkwell to $6,000,000? What do a couple of carelessly broken spark plugs mean out of a Million or Two Million Dollars' worth of materials? What harm can come from five minutes' loafing of one man out of a couple of thousand?

Besides, it is very easy to spend somebody else's money.

This is dangerously near being a habit with us.

The preparatory work—hard, nervous and discouraging—is now well along. It has been and is being done magnificently, for which thanks are due everybody who has stood up to the punishment it has involved.

Now let us give a thought to the economy side, to cleaning up the loose ends.

Every penny wasted goes into the Profit and Loss Account somehow or other.

Figure it out this way: What you waste must eventually come out of yourself personally. If you waste 25c. per day in time or material, that means that your pay has got to be 25c. per day less in order to make the final cost of the product come out right. If costs are high your pay cannot increase. If costs are low, your pay can increase and still leave a satisfactory return for the investors.

If only one man wastes, it makes no appreciable difference, but wastage is contagious. It spreads like smallpox. If you individually waste, the next man to you catches the idea, and he wastes—then another, and so on. Like dropping a pebble into the water, the ripples spread in all directions.

Start a Wave of Economy

From now on let every individual one of us start a wave of Economy. That will also spread.

Before requisitioning another block of printed forms, let us study whether they are really essential.

Let us turn off the electric light when not needed.

Let us not send a telegram when a letter will do.

Let us not hire an extra clerk for a purely temporary rush.

In the factory, let us be careful of the nuts, screws, cotters, gaskets. One of them may cost only a fraction of a cent; a lot of them costs a lot.

Let us be more careful on the machines not to spoil material.

Let us arrange the pieces we are working on a little more conveniently so that the same effort will get more out of them per day.

Let us do something effective during the three minutes between this job and that.

Let us avoid spilling gasoline or grease on the ground.

To sum up, let us get the habit of Economy in watching little things. If we get the habit in the little things, we will surely have it in the big ones.

I ask everyone in the organization to devote five minutes thought to the problem of how in his own individual work he can make some saving, whether it be dollars or pennies.

And let us each remember that in the long run, every Economy, little or big, decreases the ultimate cost of the product, which means that we can expect just that much more for our own share.

Now everybody get together for E-C-O-N-O-M-Y.

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"Whiskers Bill, the Wonder Boy," smiled Reilly. "He wonders why those prospects didn't stay to hear the finish of his story... That woman left because she couldn't stand those whiskers."

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Here Is Some Straight-from-the-Shoulder Advice That Will Help Make Better Salesmen

The Man Who Needed a Shave

He could have raised sideburns and a dollar-spot spinach, that boy. And the worst of it was, he never knew how much those whiskers stood in his way. He may have saved himself a black mark by not being late at the office, but he carried a bigger black mark around with him.

By Ray W. Sherman

REILLY and Tommy Trumbull, boss and salesman in the sale of the Sennett in Callawassa, had done every show within 100 miles this winter.

Inasmuch as staging a show was one of the annual jobs in Callawassa, they figured it was good business to get out around the country and see how the other fellows did it. It helped them in their own exhibition.

This time they were doing the Spring Valley show, which was held in a big hall with a high roof, and quite a lot of floor space for a town of the size of Spring Valley.

The exhibits were pretty good. The Spring Valley dealers had copied the modern, decorative, up-to-snuff exhibit idea of the last Callawassa show and had the place filled with palms, ferns, rugs, wicker furniture and all sorts of little touches and cosy corners that made the show into a regular atmosphere of aristocracy.

Reilly and Tommy stopped to look at a new four-passenger roadster, a type that was proving popular in that section of the world. They looked, and as they were leaving a young man appeared from behind the cars and asked: "Are you interested in cars?"

"No," said Reilly, and they went on. But they didn't go far. Something about the young man had won Reilly's attention, and the Sennett man strayed across the aisle and made believe look at a motor while he really looked at the salesman.

"Some Mug," Ejaculated Reilly

Tommy thought he meant the motor, and looked carefully to see what part of the motor's anatomy might be meant. Then he glanced up and discovered that Reilly was looking not at the motor but at the young man across the way. Tommy then began to study the young man.

"His face is dirty!" remarked Tommy. "Must have been working around the car and forgot to wash up."

"Dirty nothing!" shot back Reilly. "He needs a shave!"

"Gosh! Guess he does, now that I look at him again," replied Tommy.

Reilly shook his head dolefully. "Beats all how some of these guys get away with it!"

Just then a man and woman entered the exhibit and the salesman with the dusky chin began to talk to them. Every time his chin moved it was like the animation of a dark cloud. He could have raised fine sideburns and a dollar-spot spinach, that boy. Whiskers thrived on him.

It was noticeable that the woman noticed the whiskers—or something. The salesman—so-called on the pay-roll—pointed to this and that about the car and seemed full of amiable conversation, but every now and then the woman's eyes would drift from what the salesman was pointing at to the dusky visage of the young man. Finally she nudged her companion and in a few minutes they left. She shuddered as they left the exhibit.

The young man looked mystified.

Whiskers Bill

"Whiskers Bill, the Wonder Boy!" smiled Reilly. "He wonders why those prospects didn't stay to hear the finish of his story. He never will be able to figure it out, but, as sure as I stand here, that woman left because she couldn't stand those whiskers."

"Maybe he broke his razor," suggested Tommy.

"Broke nothing!" retorted Reilly. "He's one of those lads who doesn't realize the value of a shave. He probably got up late this morning and figured he would be late at the office if he stopped to shave, so he made the office on time and figured he had saved himself from getting a black mark. As it is he has one of the blackest marks it is possible for a man to get.

"Some salesmen, Tommy, don't realize the value of little things. They don't see what a money loss it is to them to be unfinished in small personal details of this kind. They do not understand how offensive an unshaven face may be to a person who takes an interest in the finer things of life—especially a woman.

"They are not at all rigid in their rules of personal conduct. They let themselves slip and slide in little details, and before they know it they are slipping and sliding in the big things in their work. And when a man gets to slipping and sliding like that there is only one outcome, and that is the final slide down and out. Or if he doesn't slide entirely out he slides away down the scale and never gets up among the big-money boys.

"Take this lad over in that exhibit. He probably wants to draw a bigger salary or earn more commissions, and he perhaps looks at the fellows who are making good and cleaning up and tells himself they have all the luck or are favorites with the boss and all that sort of stuff.

"He doesn't realize that he has perhaps just lost a sale to that man and woman solely because he didn't shave before he came to the show. And maybe other little neglects on his part have lost him other sales. And when you come to foot up all the sales he has lost and figure out the reasons for them you have ready to lay before him an analysis of why he isn't a bigger success in the selling field.

"Not many salesmen, Tommy, come into a show looking as badly as that lad over there, but nevertheless you can find quite a few whiskery faces if you go through the shows of a winter. Maybe they are not all whiskery every day, because a man simply has to shave now and then in self defense.

Rules for Handling Himself

"It isn't so much that this man isn't shaved now, but the big importance of his whiskers is in that he seems not to have fixed rules for handling himself. If he had a rule that he never would go to business without being shaved it would help him in making other rules for his self-conduct, and would help build him bigger and better as the days go by. He would stand a chance of becoming prompt on getting down in the morning, of standing up on his feet like a man instead of wilting over a car, of putting spizz and zazz into his work, And all of this would get him more money. And we all want more money, don't we?"

"Most of us," agreed Tommy, with considerable emphasis.

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Winter Business

So Long Boys

And You

Mr. Manufacturer and Jobber

Just a Word

Have YOU done all you could for YOURSELF?

MANY times during the winter it has been asked in these Winter Business pages: "What are YOU doing, Mr. Manufacturer?" With these questions it has been shown what a few are doing to promote Winter Business, and the question has been directed at the great army of manufacturers who have done practically nothing.

The idea is this: The manufacturer and jobber should be the dealer's inspiration and instruction, not his taskmaster. The top of the industry should show the bottom how to do things and should lead it on to higher and better methods of business and of selling. All of this will react to the benefit of the manufacturer and jobber in that it will enable the dealers to sell more goods.

Show the Dealers How to Sell More Goods

But there are a few manufacturers and jobbers who have not yet obtained a broad enough view of life to realize that the most successful way to get the dealer to BUY MORE GOODS is not to exert force upon him but to SHOW HIM HOW TO SELL MORE GOODS. If he can sell them he will BUY them without being urged, and if he is convinced that a certain manufacturer or jobber is a little more human than another he is quite likely to patronize that man.

Manufacturers and jobbers should be among the first to get behind the Winter Business idea. It is so obviously to their own advantage that no argument should be necessary. Several have done this and have furnished a type of co-operation that merits the name of "merchandising."

They have shown the dealer how to write sales letters, they have given him winter advertising copy, they have given him letters that will help fill his repairshop and their road men have supplemented this by personal co-operation.

There should be MORE of this. It is too late now to do anything for the present winter. The opportunity has passed. But weighty consideration should be given it all summer that a good plan may be in hand as next autumn approaches.

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21 Weeks
21 Opportunities

What Have YOU Done With Them?

TWENTY-ONE weeks ago to-day the Campaign for Winter Business was begun by MOTOR WORLD. The first shot was the big Winter Business Number. Every week since then there has been this Winter Business Department of two pages in which have been presented ideas that would help the dealer, garageman and repairman make money during the winter months.

We KNOW these ideas are good, because we KNOW of quite a few dealers and garagemen who have used them and made money thereby—as we told them they would. It was not a case of a department to suit the season. It was a case of a big, crying need, a bad business slump, a loss which should be corrected, and MOTOR WORLD studied this problem for months before it presented its Winter Business Plan.

What did YOU do with these ideas, these business-getting plans?

Did you use them?

Have you made money this winter? Or has this winter been as many other winters, a slump, a loss and a period of lethargy?

There really isn't much use NOW in worrying over whether you conducted an aggressive Winter Business Campaign. It's past history now. The only thing worth considering is whether you have been any more aggressive, have made any more progress during the past 21 weeks than you did before, for if you didn't jump into the campaign this winter in a business-like way, the chances are you will not jump into summer business as you should, and will not jump into next winter's business as you should, and you will not forge ahead each month as you should.

You will drift aimlessly along, taking what the public and the weather chooses to give you, while more aggressive dealers and garagemen gradually push you off the business map. That is the only worth-while view you can take of your Winter Business.

But if you are one of those who DID THINGS you are on the road to success. You have demonstrated that you have in you the spizz that spells success, wealth, fortune and leadership. We are glad with you for the progress you have made.

And now—one thing more. He who lacks aggressiveness must start sometime if he would get anywhere in business or in life. If you didn't go after Winter Business as you KNOW you should have, don't moon and moan about it. Start now! Get ready for spring. Determine to get MORE than your usual and natural share of business.

Go through the summer MORE THAN A WINNER and keep right on going NEXT WINTER.

The Winter Business Department Bids You Farewell
It Has Been Conducted for 21 Weeks

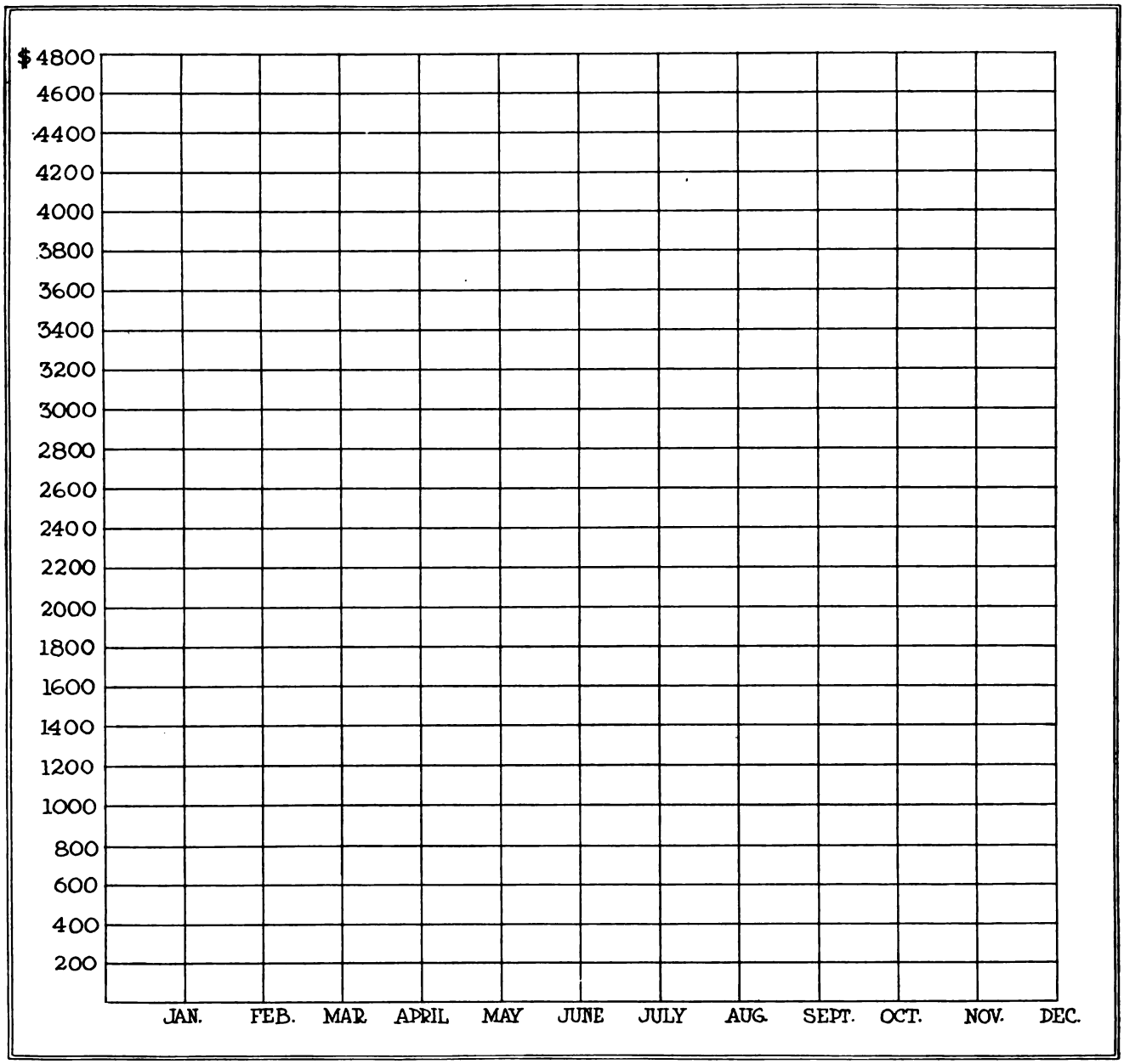
WE hope you have enjoyed these pages. We know we have enjoyed getting them ready for you each week. And now that the winter is ended and the work is done for 7 or 8 months we want to ask our readers this question:

Has this department aided you in any way?

If it has will you kindly tell us the details of how. If it suggested to you letters, advertisements or promotion work will you please send us copies of all your Winter Business ammunition and ideas. Not only do we want to inspect them, but we want to preserve them for future use. YOU may have an idea that, printed later, will be worth hundreds of dollars to other dealers, even as the idea of some other dealers in this Winter Business work has been valuable to you.

At least write us a comment on Winter Business.

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Clip This Diagram Out And Use It

MAKE A ROAD MAP

of Your Business

IF you tried to motor from Boston to Denver without a road map it is likely you would land at Oshkosh or Tampa. The chances are you would reach anywhere but Denver.

Road maps are the results of past errors and successes of exploration. They show the short cuts, the dangerous ditches, the slow-going wagon trails, the high, dry and level roads, and aid you to travel quickly, easily and safely. In fact, you would never think of making a journey without a guide map to show the way. The same thing applies to making the Journey of Business.

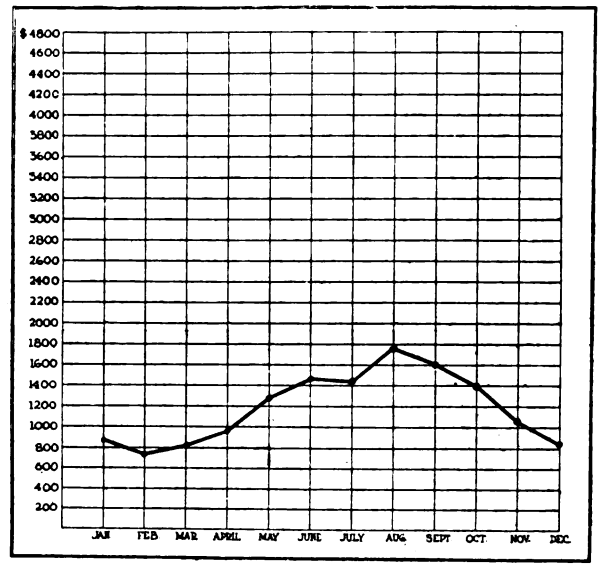
Now, you are commencing a trip extending through one year. It will be a journey of industry. You will

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travel through the country called TIME. You will try to reach the City of PROSPERITY, and you will travel on the high, dry and level roads of INCREASED PROFITS, using the motor car of GROWING BUSINESS.

You will employ the gasoline of EFFORT and attempt to avoid the dangerous ditches of MISMANAGEMENT and the slow-going wagon trails of DISSATISFIED CUSTOMERS and DECREASING SALES.

But will you use a road map to show you the way?



This shows a typical graph and makes plain the hills and valleys of the business

It will be impossible to keep on the high, dry and level road without it. Guessing at the right path is neither safe nor sure. Only unusual luck can save the man who guesses. The chances are that you will wind up blindly at the city of BUSINESS TROUBLES or the town of SHRINKING PROFITS, unless YOU HAVE THE ROAD MAP.

This has been written to show you how to make such a map. Clip out the one on the opposite page, follow the directions printed herewith, and get to work on it NOW.

This Is How to Make The Map

YOU need a pencil, a ruler, some scratch paper and your book of sales for 1916. Cut out the chart.

Turn to the pages in your sales book that show the sales for January, 1916, and add up every sale.

Turn to the blank chart you have just cut out. Find the column under January, 1916. Put your pencil in the square in the January column that is nearest to the amount of your sales for that month and make a dot in the square. For example, if you sold $875 in January make a dot in the square in the January column that is just on a line with the figures $800. And if you sold $1,222 in February, 1916, find the square in the February column that is just even with the figures $1,200 and make a dot in that square.

Total up the sales for each month. Find the column for that month and make a dot in the square in that column nearest to the figures showing that month's sales. If you do this correctly you will have one dot under the column for each month.

With a ruler draw lines connecting the dots.

The result will be your road map showing the JOURNEY YOUR BUSINESS TRAVELED IN 1916. You will find a long, irregular and crooked line. It looks like an outline of valleys and mountains and:

THIS IS HOW TO READ THE MAP

The high mountain peaks represent the times when you did your best business. The low valleys show you when business was dull.

The peaks are the high, dry and level roads. The valleys are the dangerous ditches and the slow-going wagon trails.

To make your business more successful you must make the line on your road map, from January, the first month of the year, to December, the last month in the year, as high or higher than the highest peak you reached in 1916.

If you lift up the valleys until they are as high as the peaks when you make the map for 1917, it will mean that you have done as much business in the months that were dull in 1916 as in those months that were your best.

Observe the map you just made. The road you traveled was far from straight. There at January, February, October and December it runs down into a ditch and you wonder how it ever climbed so high in August.

That ditch means that you have neglected winter business.

All other ditches mean that there is something vitally wrong with your store or shop. To do better business next year, to travel a high and level road for every month means work and thought for you. It means that you will have to think about the months that make the ditches and wagon trails on your map, and that you must work to raise them to straight high paths.

THIS IS HOW TO CHANGE YOUR MAP

Make a note on paper of the months you went into the ditches.

Make a note of the supplies you sell or the work you do in the months that make the peaks. Make a separate note of the supplies you sell and the work you do in the months that make the ditches.

Make a total of the number of customers who enter your place in the dull months and in the busy ones.

Then ask yourself these questions:

Do I handle the sort of supplies and do the work adapted to the demands of the dull months?

Do I stop advertising when the busiest months have ended? Why?

Do I make a special effort to get storage and repair business in the winter? Why not?

There are just as many motor cars and motor car owners in the city in the dull months as in the busy ones. Why does my business drop?

Am I as cordial to customers when business is dull as when it is busy?

Do I attempt to MAKE business in the dull months, by means of circulars, well-dressed windows, personal calls on prospective customers and sales? Why not?

And after you have asked these questions, answer them—remember that YOUR COMPETITOR probably has a map like yours. IS HE GOING TO STRAIGHTEN HIS LINE OR WILL YOU STRAIGHTEN YOURS?

This Map

It applies equally well to the garage, the repairshop and the supply store. Why not make a separate map for each department of your business?

TRY IT!

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Repairshop Shortcuts

From The Motor World Roadman

(No. 1071) PISTON ALIGNMENT

The alignment of the piston, connecting-rod and crankshaft may be tested on the engine by the aid of this fixture. It comprises two uprights, placed each side of the piston in the manner illustrated, and carrying a cross piece at the top that is beveled and fitted to be exactly parallel to the crankshaft, and to set on top of the piston when it is at the top of the stroke.—W. A. Terrgeon, Packard Service Station, Chicago.

(No. 1072) WHEEL PAINTING

Wheel painting is facilitated by the use of the stand illustrated. It comprises a wooden upright mounted on a base in the manner shown, and carrying a swiveled goose-neck for supporting the wheel. This goose-neck is iron and mounted on a piece of pipe set in the upright, so the goose-neck and the wheel may be turned in any direction.—W. A. Terrgeon, Packard Service Station, Chicago, Ill.

(No. 1073) VALVE LIFTER

This valve lifter was designed for the Packard, but may be adapted to the needs of many cars. It is a U-shaped clamp, having a fork that catches the spring locking washer at the lower end, and a cam-operated compressing plunger at the upper end. The plunger is held against the cam by a spring. A steel ball between the cam and plunger reduces friction. Due to the cam action, the spring is easily compressed and held in the compressed position. Another feature is that the valve is held down from the top.—W. A. Terrgeon, Packard Service Station, Chicago.

(No. 1074) QUICK-ACTING JACK

A quick-acting jack for use with auxiliary jacks, featuring simple construction, is illustrated. The upright is two 1½-in. x 6-in. wooden boards bolted to a 6 x 4-in. piece. The lever is about 10½ ft. long and pivoted at a point 18 in. from the lifting end, which is hook-shaped and steel covered, to prevent slipping or splintering.—W. A. Terrgeon, service manager, Packard Service Station, Chicago.

(No. 1075) BODY TRUCK

Bodies should not be left in the repairshop during the overhauling. A truck that facilitates moving bodies to the garage is shown. It is made of 2 x 6-in. wooden pieces, bolted together in the form of a large I, the dimensions varying with the type of body to be moved, and mounted on heavy castors. In addition to permitting one man to move the body, the body is rendered more accessible to body work.—W. A. Terrgeon, Packard Service Station, Chicago.

(No. 1076) AUXILIARY JACK

A cheap and simple auxiliary jack is illustrated. The base is a large pipe flange, obtained from any hardware store; the upright is iron pipe and the rest is a casting. The pattern for this casting may be whittled out by any repairman, and the castings made for a few cents a pound. At least two of these jacks should be made for each repair stand, and used in conjunction with a quick-acting jack.—W. A. Terrgeon, Packard Service Station, Chicago.

(No. 1077) PARTS CLEANING

Gasoline, or kerosene, forced by air pressure onto the parts to be cleaned, quickly removes all dirt and grease. A system for doing this is illustrated. The cleaning liquid is held in a metal tank placed beneath the inclined cleaning troughs in the manner shown. An injector type nozzle, connected to the air line and to the liquid, permits the liquid to be drawn from the tank and forced onto the part to be cleaned, after which it drains back to the tank to be used over and over again. During the periods that the cleaning outfit is not in use the dirt settles to the bottom and may be scraped out.—W. A. Terrgeon, Packard Service Station, Chicago.

(No. 1078) HUB CAP WRENCH

Hub caps may be readily removed without injury by this wrench. It is hard wood, made in the manner shown. The jaws are lined with leather, giving a non-slipping grip, and yet one that cannot injure the hub. The hinge at the end is a common door hinge.—W. A. Terrgeon, Packard Service Station, Chicago.

(No. 1079) RADIATOR TESTING

A thorough and painstaking method of testing radiators is shown. The radiator is removed from the car, and all intakes and outlets sealed. The filler opening is closed by a metal cap, soldered on; the outlet closed by a plate bolted to the flange, and the inlet closed by a soldered plate bearing an inner tube air valve. Air pressure may now be applied to the radiator, after immersing it in water. Bubbles locate the leaks immediately, after which the leaks are soldered, the radiator tested and finally repaired. This method seems involved, but has been found to save time in the long run, as leaks are definitely registered.—W. A. Terrgeon, Packard Service Station, Chicago.

(No. 1080) FRONT WHEEL PULLER

A quick-acting puller for removing front wheels. It consists of a thin steel shell, expanded and threaded at the lower end, so that it may be contracted on the hub cap screws after attachment. The removing force is applied by a central plunger, actuated by a wedge, and an additional jar may be applied by a blow on the exposed end of the plunger. The feature of this puller is the ease with which it may be applied, and the quickness with which the wheel may be removed.—W. A. Terrgeon, Packard Service Station, Chicago.

PROPER PROCEDURE

What Every Mechanic Should Know

Running Gear Inspection

1—Remove all wheels. Inspect bearings, repack in grease and readjust.

2—While each wheel is off force spring leaves open and spread graphite and grease between the leaves.

3—Fill all oil and grease cups at the same time.

4—Inspect for steering mechanism wear.

5—Test front wheels. The front sides should "toe-in" about ⅜ in.

6—Examine the brakes for eccentric wearing. Also for necessity of relining. Adjust brakes so that the first pressure applies them.

7—See that the speedometer gears are properly set. Fill the speedometer gear case with grease.

8—Tighten all body bolts, door hinges, etc.

9—Inflate tires to proper pressure and inspect for cuts and bruises.

Electrical Inspection

1—See that all lamps are burning and that the headlights are properly focused.

2—Test and refill storage battery.

3—Check up adjustment of breaker mechanism and see that the points are not pitted.

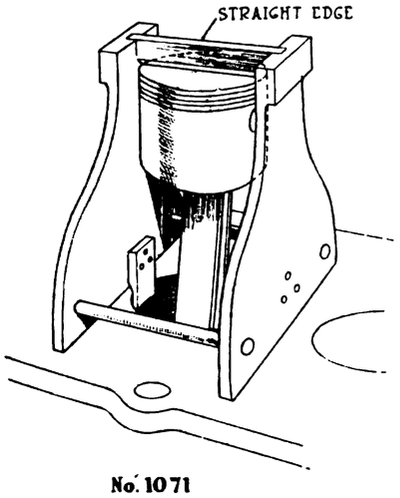
4—Examine generator and motor brushes and commutators. These should be smooth and not sparking excessively. Watch for high mica and grooved commutators.

5—See that wiring is O. K.

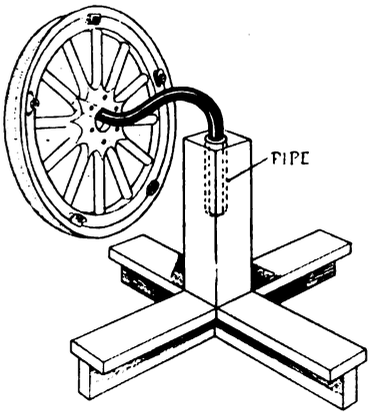
6—Check up charging rate.

Find that which the owner has neglected or done wrong and tell him about it.

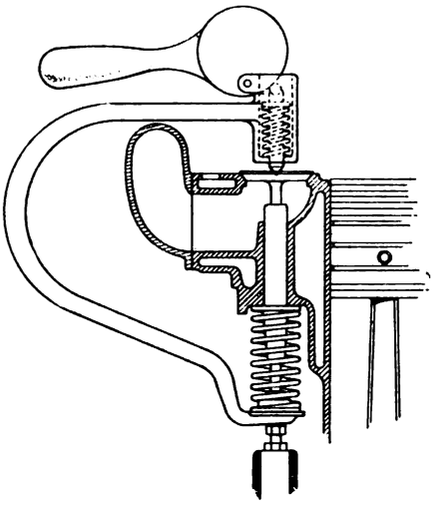
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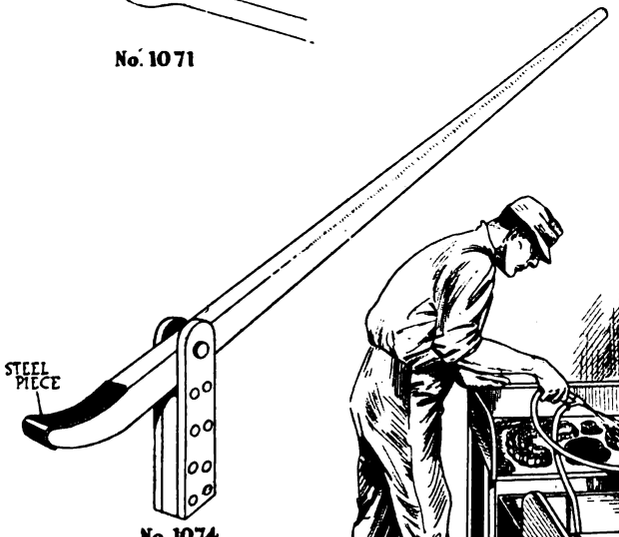
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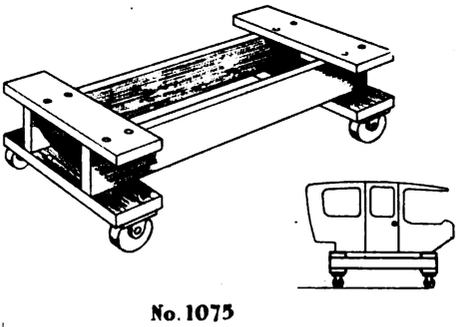
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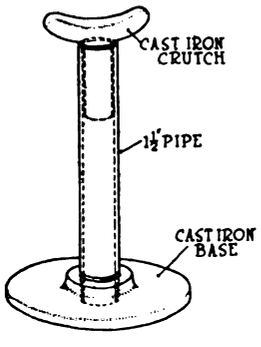
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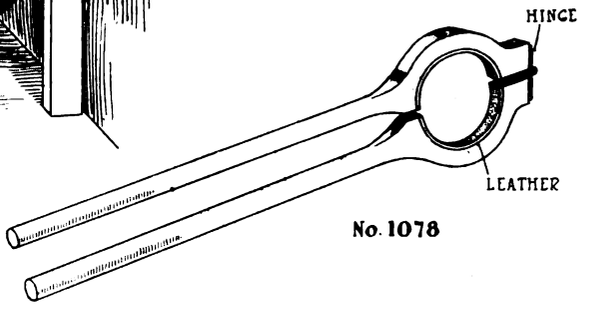
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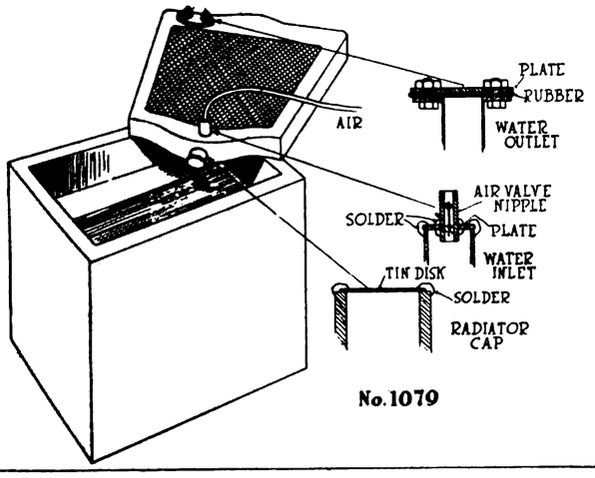
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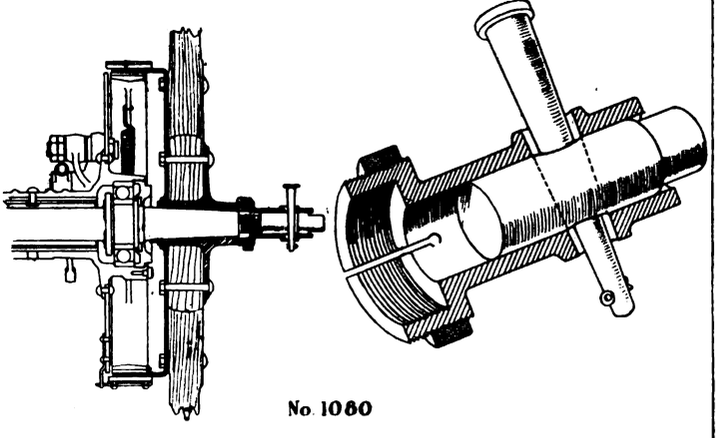
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No. 1079



No. 1080

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THE LAW

As it applies to

DEALERS, GARAGEMEN, REPAIRMEN

The editor of this department is glad to answer questions. Always send copies of contracts, notes. etc., to which you refer.

By George F. Kaiser

Dealer Can't Recover Promotion Expenses

ALTHOUGH a dealer may get back from a motor car manufacturer the deposit which he has made under a contract for cars, he cannot sue the manufacturers and recover the amounts which he has spent in preparing to sell a certain kind of cars in the territory allotted to him if the contract provides that it may be cancelled upon 15 days' written notice given by either party to the other. This is the decision by the United States District Court for the Northern district of Georgia.

The dealer and the manufacturer had entered into a written contract which provided that:

The dealer should have the right to sell cars in eight counties at certain discounts from the manufacturer's list price, and should have a discount on extra parts, etc., and contained the clause:

> "This agreement shall expire by limitation June 30, 1915, or may be canceled by the manufacturer or dealer upon 15 days' notice. The termination or cancellation of this agreement will immediately act as a cancellation of all orders received from the dealer for motor cars or parts which have not been delivered prior to the date of cancellation."

The dealer contended that the manufacturer had failed to deliver the cars as agreed upon, and that for that reason he had been damaged in the sum of $21,006.60.

Figured Cost of Selling

This amount was arrived at by the dealer by figuring what he had spent for rent, hire of salesmen, office force consisting of bookkeepers, stenographers, etc., the maintenance and cost of keeping a service station, a repair department, the purchase of spare parts, the cost of his own time and the profits which he had lost through not being able to get the cars which he was entitled to under the contract.

The manufacturer in defense set up the claim that the contract was invalid because it contained the provision that it could be cancelled on 15 days notice, and that accordingly it was not responsible.

The court decided in favor of the manufacturer and against the dealer, holding:

That as the year during which this contract was to remain in force was the first season in which the motor cars had been introduced in that territory and the dealer's purpose was to resell the cars in Atlanta and the territory described in the contract, both parties entered into the contract with the knowledge that the business between them might prove to be unprofitable, therefore either one could end it at his option, and as it was an experiment as to how the cars would sell in that territory the dealer should not have gone to so great an expense in view of the agreement which he had with the manufacturer.

The dealer was accordingly allowed to have back his deposit, but was denied a judgment for the money he had spent. Ellis vs. Dodge Bros., 237 Federal, page 860.

For Fire Protection

Editor Motor World: We would appreciate it if you would send us forms which we can use for protection covering owners' cars which we have in storage in case of loss by fire.

We have a number of cars in for storage only, and when accepting these cars we wish to have a form signed to protect us in case of fire so that we will not be held liable for insurance.—Breen Motor Co., Ltd., Winnipeg, Man.

A simple clause, such as "It is understood and agreed that the Breen Motor Co. assumes no loss or responsibility by fire," will be sufficient to protect you.

You can add this clause to the contract you are now using, or simply have little slips printed containing it, which slips can be signed by yourself and the customer at the time the car is taken in for storage. It would also be a good idea to put up a sign reading "NOT RESPONSIBLE FOR LOSS BY FIRE" in a conspicuous place where the customer cannot fail to see it.

No Claim on Car

Editor Motor World: If I sell a man a motor car and take a note in part payment, if he meets with an accident and takes it to a garage for repairs and fails to pay the balance due on the car can I claim the car for the amount of the bill due me, or does the garage bill come first?

Is it necessary to have the note recorded? And if so, should it be recorded in the county that the purchaser lives in or in the county in which the business was transacted? — Perplexed, Attica, N. Y.

If you sell a car to a man and take a note in payment you have no claim on the car unless you also take a chattel mortgage or sell on a conditional bill of sale.

The car is not yours in such a case and you have no claim on it unless you sue on the note and get a judgment, in which case the car may be seized by the sheriff on execution.

In New York it is not necessary to record the note. It is advisable not to take notes; take a chattel mortgage instead.

Question of Notes

Editor Motor World:—We would like to ask your opinion about a note given on demand in 1913 by A to B bearing 5 per cent interest. B indorsed the note when it is passed to C, who, being in need of money, wishes to bank it, but as the bank requires 6 per cent interest he gives it his personal note with A's note as security.

C becoming in fear the note may not prove good, looks to B, who gets the note secured, but only in part, yet the interest has been taken care of until finally A fails and goes into bankruptcy. C looks to B for payment, and then the question as to the liability of the different parties arises. B claims that as it was a demand note he cannot be forced to assume the loss, yet he admits that he got it partly secured by collateral.

The bank holds C's note secured by A's as collateral and looks to C for settlement. Kindly oblige by giving your opinion.—Reader.

The only reason why B would be relieved from liability would be because C had prejudiced B in some way by allowing his right against A to become less valuable. I do not think C did this so far as I can ascertain from your letter. As B gave part security it is clear that he had notice of what was being done and did not object to it.

So far as I can tell from the facts which I have at hand it is up to C to settle with the bank and up to B to settle with C.

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The twenty-sixth in a series showing

Dealers Who Have Made Good

FRANK E. WING, Marmon dealer in Boston, enjoys the unique distinction of having handled one car exclusively for a longer period than any other man at the Hub. Others have handled makes for lengthier periods, but they had other lines, too, but he has been a Marmon dealer, first, last and always.

He traces his ancestry back to Daniel Wing, who landed here in 1632. Wing was born in Louisville, N. Y., in 1869, and when five his parents moved to Ohio, where he got his education, graduating from Hiram College. In his early years he sold bicycles in Akron, but moved East in 1894 to join the Pope forces.

Realizing that the automobile was going to be a big factor he looked about for a car. On one of his trips he saw a Marmon in Tennessee and its stability appealed to him. When he looked up its makers he decided to take it on. In December, 1904, he secured the agency for New England and he has held it ever since.

Wing is progressive. To show what the car could do he entered it in three Glidden tours and drove through them without penalties. He has scored successes in Bay State runs and his Boston to Bretton Woods and return trip in a Marmon with gears locked remains unbroken.

For a number of years he has been a director of The Boston Automobile Dealers' Association. His business has grown so that now he is not able to house all his departments under one roof, although he has one of the largest buildings in Boston. His volume of business is larger than that of any other Marmon dealer, and he gets 1 out of every 10 cars the factory builds. He is the only dealer left who went through the air-cooled days with the company. He does a business of $600,000 a year and it is growing all the time.

The Why:

He attributes his success to the fact that he believes in doing one thing well instead of trying to do several things fairly well. He is on the job all the time, and even on vacations when touring he sells cars much to the envy of some of his rivals. With him every minute counts, and he knows intimately some of the biggest men in all walks of life in New England through dealing with them personally when selling Marmon cars.



Frank E. Wing

Boston

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SCIENTIFIC CONSTRUCTION

GARAGES
SHOWROOMS
REPAIRSHOPS

By Harold F. Blanchard

An Inside Location with Corner Advantages

Editor Motor World: Having just received a copy of Motor World from a friend, I think it is one of the finest motor papers I have ever read. Please enter my subscription for one year and send bill to me.

I have just bought a piece of ground 60 x 100 upon which I am going to erect a garage and showroom, and would appreciate any plans or suggestions. I am interested in an attractive front, and would be pleased to have a suggestion from you on this also. Building to be one story, and built that we may add a second story at any time.—Carl Ament, 1418 Margaret Street., Marshall, Pa.

Everything has been provided for. The entrance to the garage is exposed so that you can obtain light from two sides into your showroom. Thus, you have practically all the advantages of being on a corner. Figs. 1 and 2.

There is a small accessory store divided off from the showroom by showcases and an arch, a stockroom, private and general offices, rooms for men and women, garage space for fifteen cars, washrack, a shop big enough for five or more cars, and equipped with vulcanizing, welding and electrical rooms.

Chauffeur Quarters —Big Gas Tank

Editor Motor World: This garage is simply to house cars during the year for customers (no agency showroom). Would like to accommodate about 18 cars including two of them in the (or one) washstand for that can be used during the night. If I have a shop I want it as small as possible but still convenient in room for two cars. I want the washstand in the best place for convenience and want good light and as much as possible.

Have enclosed plan of block and location and a plan I had in mind. If it is practical, improve on, if not, give me the best your mind offers.—Luther M. Sibley, Edgartown, Mass.

The only objection to placing the wash rack at the front is that this part of the garage may be colder due to frequent opening and closing of the main garage door. Whether this objection is serious or not can be best judged by you.

We do not think it advisable to have a door open directly onto the wash stand. This part of the garage can be accessible from the main entrance. The objection to the door is that it will allow a certain amount of cold air to leak through and it will not afford the window space which would be available if the door were not used.

We should not build the chauffeurs' room, however, unless you feel that it is necessary to do this in order to keep your garage filled with cars. Chauffeurs' accommodations must be regarded mainly from the profit viewpoint, and if you can fill your garage with the kind of cars you desire without offering this added inducement to chauffeurs as a bait so that they bring their cars to you we should advise you ot to build it.

The fact that you are near the water front suggests the possibility of your obtaining your gasoline by boat, in which case you might find it profitable to have a very large tank, say one of 10,000 gal., and buy your gasoline in large quantities. You will find that you can get it for about a cent less per gallon.

Two Rows of Cars on One Side of Aisle

Editor Motor World: I thank you very much for your trouble in making my garage plans. It was splendid. Could you let me know what is meant by storing two rows of cars on one side of the aisle?—Luther M. Sibley, Edgartown, Mass.

Two rows of cars may be placed on one side of the aisle and one row on the other, provided, of course, your garage is not too narrow, and the advantage is obviously that you get in one extra row of cars.

At a first glance you may think that there will be considerable difficulty with this arrangement because quite often an owner will come for his car and find it in the back row, but if you are careful in arranging the cars you will have no trouble. The idea is used in many garages in different parts of the country and works out well.

The proposition is simply to store the cars that are going out early in the

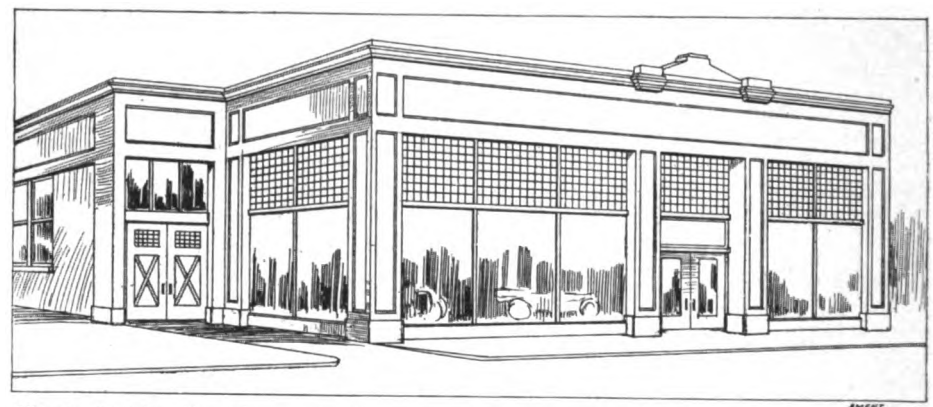


Fig. 1—Leaving the driveway to the garage owen gives the showroom almost as good a position as if it were on a corner

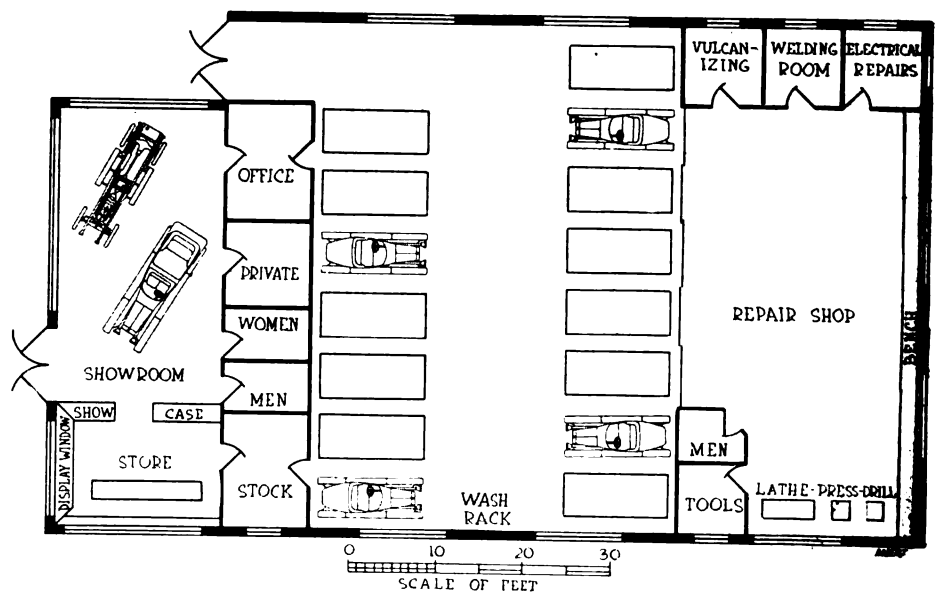


Fig. 2—Plan of garage, showroom and shop. The cars in front of the shop doors should be the ones which are away from the garage the most

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morning in the outer row, those that are going out later in the row next to the wall, and the cars that you are not sure when they will go out may be stored in the single row on the other side of the aisle. It is an easy matter when the driver comes in to ask him what time he is going out in the morning and place his car accordingly.

Showroom Finished in Light Colors

Editor Motor World: We should like some information on the finishing and decoration of a showroom. Please reply as soon as possible as we are in a great hurry.—Reader, Trinidad, Col.

We would suggest a tile floor for the showroom, and the used car department might have a cement floor marked off in 10-in. squares. The cement should be colored and should have a granolithic finish. Your local contractor should understand what is wanted.

We are enclosing some pages from MOTOR WORLD to give you some ideas for the showroom interior and exterior.

You will note that in most of these showrooms the lighting is semi-indirect, that is the chandeliers are inverted and are usually suspended from the ceiling. You will find this the best method of lighting but, of course, you must have the ceiling white or nearly white. Do not overlook this point.

As to color, we should advise the showroom to be white or nearly white, although it should be relieved with some darker color; in other words, if in the tile floor the predominating color should be white, you should have a darker color. The walls and ceiling should be very light cream or some other attractive light color. A darker color may be used for trimming. There is such a variety of possible color combinations that it is impossible to say more than that the general scheme should be light so that no light will be wasted and so that the cars will show to best advantage. At the same time you do not want to make the mistake of having a pure white showroom. Consequently the white should be relieved with some color or possibly two or three colors should be used in the color scheme.

You should have some rugs, some pictures, some attractive and simple furniture and a few potted plants but there is so much choice in these matters that it is impossible to say more. We believe, however, you can obtain some ideas from the pages which we are sending.

Correct Width for Garage

Editor Motor World: We intend building a cement block garage in the spring, and wish you would advise us the proper width for storage space to set the cars back to the wall with room enough to get them in and out to the center aisle.—Knapp Motor Car Co., Lebanon, N. H.

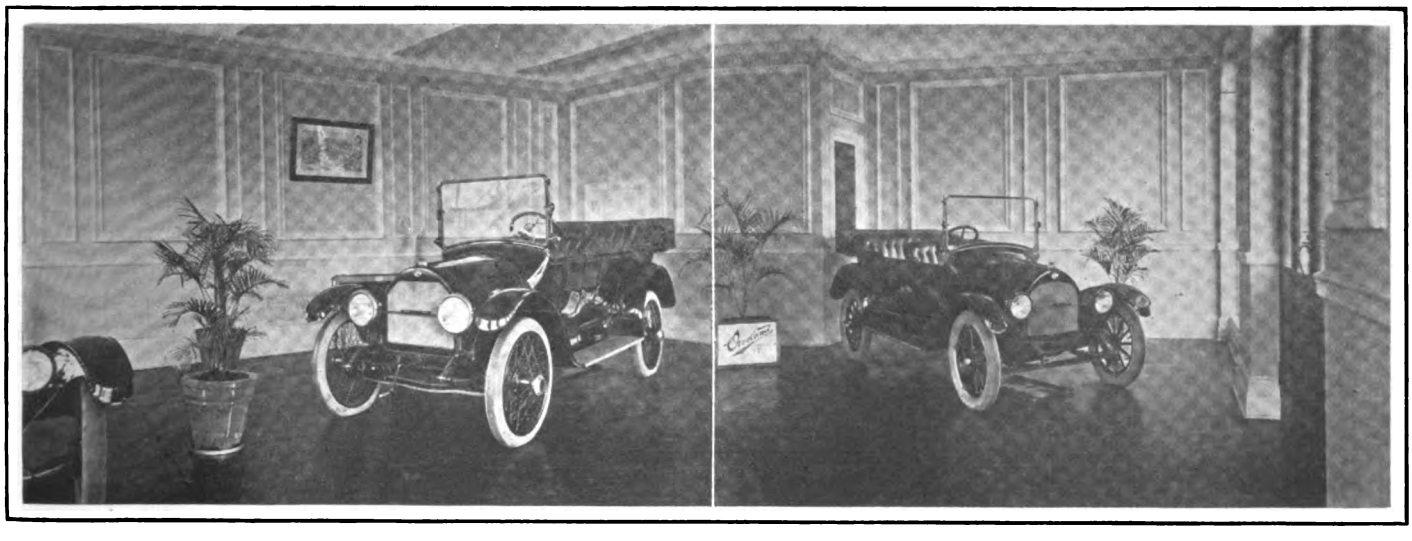
A 50-ft. width will be found most satisfactory. This is ample, and do not make it any more. If you are crowded for space or desire to keep the cost of your building down to a minimum, you might make the width less. If the majority of cars in your town are very small ones, you might get along with 40 ft., and if they are medium sized, 45 ft. will be sufficient. Fifty feet is ample to handle cars of all sizes.

If we can give you any further information we shall be glad to do so. Please bear in mind that we will draw plans for your garage if you will be kind enough to give us details regarding what you want: How many cars you desire to place in your show room, how many in your repairshop and how many desks in the office. We should also have as sketch of your plot.

HOME OF OVERLAND IN JOHANNESBURG



An attractive sales and service building has recently been erected by the Imperial Motor Supply Co., Overland distributor in Johannesburg, South Africa



The interior of the showroom is in good taste and is an effective aid in selling cars

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Editorial Observation

Used Cars

THE tendency toward the elimination of all trades in the sales of new cars appears to be spreading. Everywhere those dealers who have adopted this policy are unanimous in their declarations that the move has been a good one.

Obviously, it is difficult to make a hard and fast rule that absolutely no used cars will be taken in trade and there are few dealers who have done so. Most dealers have merely reduced trading to the minimum amount possible. This means that they have refused to accept used cars of makes other than the make they are selling; and even in this case the dealer will not take in a used car of the make he is selling unless he can get it at a figure which is certain to return him a profit on the deal. Some dealers, however, have absolutely cut out trading.

New Car vs. Old Car

As one dealer put it: "I would rather have a new car on my salesroom floor and have my money tied up in it than have a used car there." This puts the situation right where it can be seen.

To a certain extent, the time payment plan has had a good effect in reducing trading for the reason that it has opened up a field that is new. Prospects with a couple of hundred dollars who would have purchased a used car now make the first payment on a new car; this means clean business for the dealer. Also, it follows that it has a depressing effect on the used car market for values are bound to fall when demand drops.

This makes it all the more important that the dealer should stick out for no trades. He has less chance now of correctly valuing a used car than he had a year ago for used car values are not as stable as they were.

Owner Should Pay For Service

The accepted method is for a dealer to agree to sell a used car for a prospect who wants to make a trade. In most cases the dealer handles this business and carries the burden himself. Some dealers charge their customers 5 per cent for selling the car and wherever this plan is used it is working out well.

In the end it all comes down to better salesmanship. If a prospect is properly sold on the new car; if he is so sold that he really wants the car, can't do without it, the used car becomes a secondary consideration. The dealer will have no great difficulty in making plain his own position—may not even have to—and the prospect will be satisfied to sell his own car.

Of course, if the prospect really needs the money tied up in the old car to help pay for the new one, that is another matter. And here, again, the time payment plan comes to the help of the dealer; the amount the owner expects to get for the used car can be arranged on time, and then paid off in a lump sum when the owner sells his car.

Show Music

EVERY show manager prides himself on the excellence of his musical program. But he ought to ask himself seriously whether the exhibitors want the music.

At many of the recent shows exhibitors have been quite frank in their criticism of the music. They complain that it interferes with sales talk, that it is quite hopeless to attempt to talk above the music and that the show would be better without it.

The object of the music, of course, is to attract the crowd. Quite likely it serves its purpose at least in part. But what is the use of attracting a great crowd and then being unable to talk to it?

There must be some way out. Has any show manager tried having his musical program at a certain time, say during the first hour of the show, or the last hour perhaps, with the remainder of the time free from musical interruption? Would this help matters?

The salesman who attempts to talk seriously to a prospect all the while trying to make his voice heard above the blare of the band is working at a serious disadvantage. He cannot monopolize the prospect's attention as he should and salesmanship suffers in consequence.

It might be wise to cut out the music altogether. MOTOR WORLD would like expressions of opinion.

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Canadian Stamps

Editor Motor World: On page 64 of your Jan. 31 issue is an article under the caption, "He Is a Thief." This dwells upon the fact that common courtesy demands a reply to a letter wherein the sender encloses a stamped return envelope.

In this connection would point out that it seems to be an increasing custom for certain manufacturers in the United States to send self-addressed envelopes to Canadian jobbers.

For your information would advise that a United States stamp affixed to an envelope is not accepted for transmission through the mails by the Canadian postal authorities. Furthermore, in addition to the regular two-cent letter rate, an extra 1 cent war tax stamp is necessary.

We are merely calling this matter to your attention so that in case you have occasion to refer to this subject again, concerns in the States can avoid wasting good United States stamps by sending them to this side of the line.—Hyslop Brothers Limited, by A. M. Bottcher, Toronto, Canada.

Planning a Show

Editor Motor World: We are mailing you under separate cover the floor plans of our show. We are endeavoring to make this the one successful show of the year. Following I will endeavor to explain our methods for doing so.

You will note by our blueprint that we have 70 display spaces, consisting of 180 sq. ft. each. These spaces are 20 x 9, just room enough for one car. We do not intend for the public to visit in and out of the booths as heretofore, but to pass along the aisles at their will. We think this a better plan, as it will give every exhibitor the same privilege to show his exhibit the same as his neighbor. Then, too, our cars will be all placed uniform. We are reserving this right. This will do away with having cars placed haphazard and spoiling the uniform and color effect, which we feel to be of great importance to a successful show. We will place all cars to show to the best advantage, as per diagram.

Now to give you some idea of our decorations. We also reserve the right to do all the decorating and card printing. This, of course, will work in with our color scheme. We will have two sets of standards, one to be 10 ft. high with flowers on top. The other to be 2½ ft. high with flowers on top. The posts are to be connected with a 1¾-in. gilded rope. We will have fifty of the larger posts and about a hundred of the smaller. These posts are to be painted in the following colors: Brilliant old rose, green, and gold. The inner panel to be in the old rose, the small fancy work in the center to be in green. The outer panel to be left in the rough, not planed, and gilded, as per diagram.

In regard to distributing the spaces, we will sell the exhibitor the amount of square feet he wishes, then we will hold a drawing 5 days before the show. He will draw his position at this time. You will note we have our spaces numbered, also the rows are lettered. We think this a better idea than selling the spaces outright as there is always more or less trouble in the old way. This also gives the little exhibitor the same right to show as the larger. Those taking more than one space will be placed in the center of the house.

We will charge 25 cents admission, which ought to be a good drawing card, and furnish the program free. We have not planned our entertainments yet, but if our show interests you we will be only too glad to let you know just what we are doing.

Trusting you appreciate our effort to make the automobile game bigger and better than ever, we are—Blackwell & Sowle. By V. A. Sowle, Denver.

What READERS Have to SAY

Oakland Association to Picnic

OAKLAND, Feb. 20—One of the largest and most enthusiastic meetings ever held by the Alameda County Automobile Trade Association was held at Livermore, February 8, over sixty being present. The idea of meeting in different parts of the county every month rather than at one set place has proven to be such a success that the association has decided to follow out the scheme. At eight o'clock the members sat down to a banquet and speeches were made by various members from different parts of the county; and from the reports gathered there, it was shown that Alameda County, from an automobile association standpoint, was in a very healthy condition. L. R. Priest of Oakland spoke at length on the efficiency of the shop, and of the bringing closer together the repairman and the customer. Many other speakers were heard during the evening. It was decided to hold a monster automobile Trade Association picnic some place in Niles Canyon in May, and invite San Francisco, Stockton, Sacramento, San Jose, and in fact, the surrounding territory to join with us, close up their places of business, and make one grand day of it. The Tire Changing Contest held under the auspices of this association on January 29 was won by Walter Aplin in 3 minutes and 43 seconds.

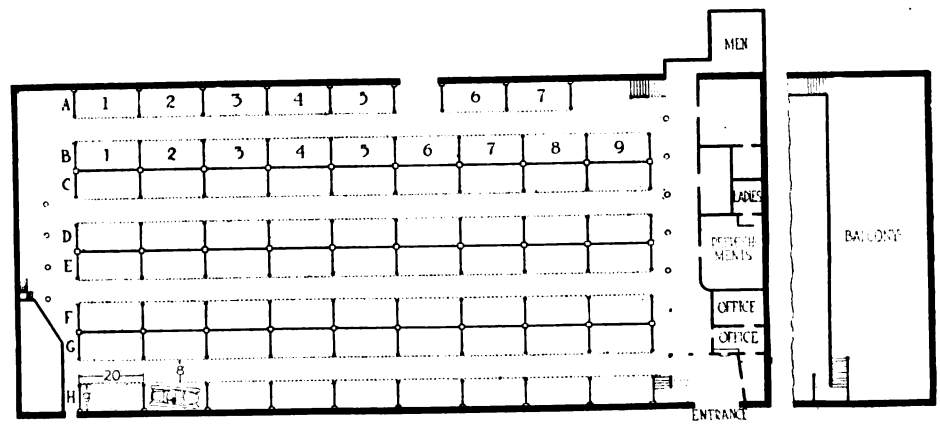
Washington's Birthday in Boston

BOSTON, Feb. 23 — Washington's Birthday on Motor Row was a revelation to the dealers. From shortly after 10 until about 5 o'clock people were visiting all the salesrooms along the row. In a number of the places there were special decorations and music. At every salesroom there was a full force of salesmen. A number of the truck dealers were open, too, and they shared in the general list of visitors, though not to such a great extent as the car men. One truck man found a visitor who will buy eight of his machines in the spring.

One surprising thing about the open house was the number of motorists who came from out of town. At several of the places there were callers who motored down from New Hampshire and Vermont.

Ft. Dodge Dealers at Des Moines

DES MOINES, IA., Feb. 24—Thirty dealers of Fort Dodge, Ia., members of the Fort Dodge Automobile Dealers' Association, came to Des Moines in a special train this week and were the guests of honor at the Des Moines show on Wednesday. They were entertained by the Des Moines Dealers' Association. George Tremaine organized the party.



This is the way the Manager of the Denver Show laid out his spaces. Read his letter

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The RETAIL NEWS.

NORTH WEST

The N. W. Cole Motor Co., Minneapolis, is having a building erected in the new Motor Row on Tenth Street. The company has for 8 years been in a former automobile center, 219 Sixth Street S. The new building is two stories and basement to which a third story may be added before completion. It is "L" shape built around a corner store. On Tenth Street is 60 ft. front and on Second Avenue S. is 50 ft. The showroom is on Tenth street and the garage entrance on the avenue. Back of the showroom is the office and back of that the stockroom. On the second floor is the shop. The building will store 100 cars and the basement will be set aside for the trucks. The company's district is Minnesota, Dakotas and western Wisconsin.

The Olympian Motor Sales Co. has been incorporated at $50,000 to distribute Olympian cars in Minnesota and has opened display rooms in a new building at 114 Hennepin Avenue. The incorporators are M. W. Goldstein, Sam Kaufman and Isidore G. Goldberg.

The Barclay Automobile Co. has opened a salesroom at 907 Hennepin Avenue for Kissel and Scripps-Booth.

Francis Wooden, Westhope, N D., bought the S. K. Warnock automobile business.

The Amidon Auto Co., Amidon, N. D., has been established by J. C. Ireland and T. J. Haggerty.

T. D. Moran and E. E. Yeager, Dillon, Mont., have formed a partnership in the automobile and repair business.

Frank Fimon, Clarissa, Minn., sold his garage and automobile business to Ray Leseman and R. B. Mott of Bertha, Minn.

Vernice Turton, Alexander, Minn., bought the William Hendrickson interest in Motor Inn.

F. G. Meyers, Fergus Falls, Minn., bought the Bergerud interest in Miller & Bergerud.

A. Borden and H. E. Hanson, Litchfield, Minn., bought the interest of their partner, Victor Mickelson in the Motor Supply Co.

The Overland-Perrin Co., Mankato, Minn., has been capitalized at $40,000 by President H. H. Perrin, secretary B. H. Chesley and treasurer, G. H. Wilson. The retail business of H. H. Perrin has been incorporated at $10,000 by President H. H. Perrin, secretary H. J. Palmer and treasurer H. W. Kelley.

S. C. Tobin, Mandan, N. D., has opened an accessory shop in the Hanley building.

W. C. Hochspring, Brownton, Minn., has bought a half interest in the Brownton garage. He is from Round Grove, Minn.

S. M. Simonson, Sauk Rapids, Minn., has opened a repair shop.

Gould & Guptil, Elk River, Minn., will convert the Elk River Garage into a showroom and service station for Dodge cars.

C. P. Anderson, Owatonna, Minn., has moved into his new garage at Bridge and Oak Streets.

Theodore Ingels, Odebolt, Iowa, has bought an interest in the Einspahr Automobile Co.

Fred Kawamura, Hudson, Wyo., has rented a building and is opening a garage.

Jack Kasparek and **Robert Flory**, Albion, Neb., have formed the new firm of Kasparek & Flory, to handle the Chevrolet.

Frank Lane and **W. H. Austin**, Walthill, Neb., have leased the Meyers Garage and bought the stock.

C. E. Bucknam, Osage, Iowa, has bought the interest of his partner, B. K. McInay, in the East End Garage.

Peter Holdal, Madison, S. D., has leased quarters and opened a salesroom.

O. O. McPheeters, Chappell, Neb., has taken quarters for a Ford agency and general garage business.

James Tanquery, Franklin, Neb., has sold his interest in the Tanquery & Bonham Garage to his partner, B. R. Bonham, who will conduct the business.

Clark N. Hall, Bellwood, Neb., has bought the garage of Peter Powers.

Lenhard & Lenhard, DeWitt, Neb., have bought the Messmore Garage.

E. J. Pratt, Syracuse, Neb., has opened a garage.

Oliver Buzzard, Red Cloud, Neb., has bought the interest of George Corner in the Havel & Corner Garage.

F. G. Griese, Schickley, Neb., has bought the Carlson & Gibson Garage.

John Rundt, Burr, Neb., has bought the garage business of Kahl & Henning.

H. DeWolf, Gordon, Neb., has sold his interest in the garage business to his partner, Arthur Finch.

Gabler Bros., Winside, Neb., have opened a new garage.

C. V. Gilbert, Broadwater, Neb., has bought a half interest in the Broadwater Garage.

John Shaw, Edgar, Neb., has opened a new garage.

E. G. Beldon, Fremont, Neb., has opened a new garage.

Charles Miller, Genoa, Neb., has bought the garage business of Casper Rasmussen.

Fishler & Zakover, Morse Bluffs, Neb., have sold their garage business to Dodge Bros.

A. Grantham, Obert, Neb., has bought the garage of H. L. Anderson.

C. Welch, Tekemah, Neb., has sold his interest in the Welch Bros. garage.

Carl Merner, Wausa, Neb., has sold out his garage business and retired.

Ross & Kramer, Butte, Neb., have opened a garage and repairship.

Helpbringer & Co., Crawford, Neb., have leased the Crawford Garage.

John Monnich, Fremont, Neb., has opened a garage business at Cedar Bluffs.

J. P. Sprocklen, Chadron, Neb., has bought the C. J. Carley Garage.

C. J. Marick, Franklin, Neb., has bought a building and opened a new garage.

L. J. Evert, Howells, Neb., has bought out his partner in the Howells Motor Co., and will run the business alone.

J. J. Novak, Loma, Neb., has opened a garage and repairshop.

Herman Zander, Stanton, Neb., has bought out his brother in the Zander Bros. Garage.

M. Osterlock, Thaper, Neb., has bought the Thayer Garage.

Louis Hubenthal, Beemer, Neb., has bought the Ford Garage.

George Brown, Bloomington, Neb., has opened a new garage and repairshop.

Anderson & Veberg, Hordville, Neb., are a newly-organized firm which will operate a garage and general automobile business.

E. J. Ludwig, McCook, Neb., has bought the interest of Zimmerman Bros. in the McCook garage and repairshop.

L. A. Wilson, Council Bluffs, Iowa, owner of the Lincoln Highway Garage, has bought the Athletic Auto Co. and combined the two.

The Livingwood Motor Truck Co., Osceola, Iowa, has been incorporated by R. L. Thompson and Jesse Livingwood, with capital stock of $10,000.

J. J. and R. E. Mangold, Manchester, Iowa, have bought the garage of Fred C. Stearns at Rockwell City, Iowa.

The Gogeter Auto Supply Co., Lincoln, Neb., has been incorporated at $5,000 by Burton A. George and Frank Underhill.

J. W. Nohavec, Crete, Neb., has bought an interest in the James Shebl Building, which he will use for a garage.

C. C. Underwood, Doniphan, Neb., has opened a garage at Trumbull, Neb., and will move his residence there.

William Armstrong, Coon Rapids, Iowa, has bought the new garage of Hayes Bros. at Audubon, Iowa.

Henry Reilander, Exira, Iowa, has opened a garage and repairshop.

The Gell Motor Co., Graettinger, Iowa, has built a garage.

Brown & Ely, Maquoketa, Iowa, have dissolved partnership, Thomas Ely buying his partner's stock. The garage will now be known as the Wright Garage.

Rollin Johnson, Huntley, Neb., has bought the garage of Webster Fuesner.

Paul Clark, Spaulding, Neb., has formed a partnership with Edward Toohey, and the company has opened a repairshop.

C. B. Elliott, Havelock, Neb., has bought an interest in the garage of H. G. Vannoy on O Street.

The James L. Johnson Garage, Florence, Neb., was totally destroyed by fire.

B. E. Farley, Primrose, Neb., has bought out the Sievers Garage.

Girman & Mobley, Blencoe, Iowa, have opened a new garage.

The T. C. Cocklin Garage, Griswold, Iowa, was destroyed by fire.

G. P. Berger, Harlan, Iowa, has bought the garage and repairshop of Charles Hansen.

G. L. Fetters, Washington, Iowa, has bought the Motor Inn Garage.

Bukowski & Krakewski, Ashton, Neb., have opened a new garage of which H. R. Lorenz is manager.

The Tooley Garage, Broken Bow, Neb., has been leased by R. L. Thompson and Ray McCandless, who take possession at once.

Charles Perkins, Bridgeport, Neb., has opened a new garage.

E. J. Remans, Blair, Neb., has bought the North Side Garage.

Roberts & Romsdel, Friend, Neb., have reopened the Heagney Garage.

James and **Martin Kouzack**, Guide Rock, Neb., have bought the senior partner's interest in the garage firm of Reed & Son.

Anderson Bros., Winside, Neb., have bought the new garage of Gabler Bros.

N. P. Sorenson, Moorhead, Iowa, has bought the Moorhead Garage from W. A. Nicholson.

I. B. Friesen, Fairbury, Neb., has bought a building and opened a garage.

F. E. Hammond, Lynch, Neb., has bought the Darr Garage.

Edward Zitzlsperger, Dedham, Iowa, has bought out his partner in the Zitzlsperger Garage.

S. T. Rhodes, Randolph, Iowa, has sold his garage to R. H. Windle and F. R. Schlett of Council Bluffs, Iowa.

Edward Thorp, Jefferson, Iowa, has sold the South Side garage and repairshop to Leo Fleck.

The Ford Service Station, Newmarket, Iowa, is a new garage opened by C. L. Brooks and M. C. Moneyhun.

The Griswold Machine & Auto Co., Griswold, Iowa, has been consolidated with the Grinnell-Hully Co. there.

George W. Patee, Sac City, Iowa, has sold the Patee Auto Co. to Gus W. Strohmeier, who has taken possession.

A. J. Jensen, Fremont, Neb., has opened a garage in the Middaugh Building.

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Louis Hubenthal, Beemer, Neb., has bought the Ford garage.

E. J. Ludwig, McCook, Neb., has bought the interest of Simmerman Brothers in the Hupmobile Garage on East B Street

E. E. Reese, Surprise, Neb., has rented a building and opened a garage.

The Andenburg & Olson Garage, Dell Rapids, S. D., was destroyed by fire.

W. J. Prish, Dell Rapids, S. D., has bought an interest in the Amund Hansen Auto Co. The new firm name will be the Hanson & Prish Auto Co.

MOUNTAIN

John Linn, Graybull, Wyo., has bought the interest of G. C. Beckwith in the Public Garage.

G. L. Walker, Lander, Wyo., has opened a vulcanizing and repairshop in Kemmerer, Wyo.

The Auto Goods Co., Rawlins, Wyo., has been incorporated with capital stock of $100,000. Incorporators are Fred Kelly, Joseph Jacebucor, M. G. Finlay and others.

MIDDLE WEST

Pierce & Caldwell, Decatur, Ill., have completed plans for a new garage and sales agency, to cost $20,000 and which will be the largest in the city. The basement will be fitted up for storage purposes. A tenant is now being sought.

Guy Coleman, Canton, Ill., has opened a new garage on North Main Street. He will do a general repair business and carry supplies.

Peoria, Ill., will soon have three new garages. H. B. Pinkerton is building one in the 800 block of Main Street which will be used as a sales agency and repairshop. The Overland company, composed of George Cummings, Bruce Rutherford, and Howard Kinsey, is erecting a spacious structure in the 1600 block of Main Street. The Crown Automobile company, is erecting a new building in the 800 block of Main Street which will be completed about March 1.

The Twin City Auto Supply Co., Marinette, Wis., has been organized by George A. Williston to do a general jobbing and retail accessory and supply business in Marinette and Menominee, Mich., and vicinity.

The Portage (Wis.) Motor Car Co. has made a large installation of motor-generator apparatus.

The Motor Supplies Store Co., Chicago and Minneapolis, has opened a branch store at Chippewa Falls, Wis., in charge of B. R. Edelson.

W. F. Kroening, Wausau, Wis., has opened a public garage and repairshop on Washington street.

The Hollier-Wisconsin Co., Madison, Wis., has been organized as an outgrowth of the Madison Motor Car Co., to handle the Wisconsin State distribution of Hollier cars. The Madison Motor Car Co. continues the Studebaker, Dodge, White truck and Smith Form-A-Truck dealership.

John H. Spengler, Marion, Wis., is exclusive Ford dealer in that city, having purchased the interest of his partner, Fred Fuchs.

The Milwaukee Auto Painting Co., Milwaukee, has opened a complete painting and refinishing shop in the Welch building, 700-704 Grand avenue.

P. W. Rindfleisch & Co., Plainfield, Wis., have been appointed Overland dealers and will open showrooms separate from the present garage and repairshop.

The Bachman-Diener Auto Co., Milwaukee, Dort distributer, has changed its name to Bachman-Seefeld Auto Co.

Samuel Hunn, Maiden Rock, Wis., is preparing to erect a two-story public garage and repairshop, 50x80 feet, of hollow tile and stucco construction.

William Henke, Wautoma, Wis., has decided to reopen his garage and repairshop, having been appointed Overland dealer. Miles Colligan, Wild Rose, Wis., will be manager.

W. L. Oltmann and Alfred Larson, Ellsworth, Wis., will build a one-story garage and machineshop, 60x130. The firm is Hudson, Oakland, Overland, Reo and Ford dealer. The garage will be ready May 15.

The Boerner Auto Co., Cedarburg, Wis., organized some time ago and now operating a garage and dealer business, has changed from a partnership to a corporation under the same style. The capital stock is $15,000 and the owners are W. R., R. V. and G. A. Boerner.

Wagner & Krautkraemer, Erdmansville, Sheboygan county, Wis., have been appointed Ford and Oakland dealers and will build a small garage.

Alex Johnson and son, Earl, Sturgeo Bay, Wis., are establishing a repairshop and vulcanizing business in the Johnson machineshop building.

F. W. Andree, architect, 77 Cawker building, Milwaukee, has been engaged to plan and supervise the erection of a $20,000 garage and repairshop at Oshkosh, Wis., for unnamed interests. It will be 50x100, two stories and basement, of fireproof materials.

Harry Beaudette, Milwaukee, who has been conducting an exclusive motor repairshop at Fond du Lac avenue and Twenty-seventh street, has taken a long term lease on the Knickerbocker Garage at Hartford, Wis. He will dispose of his business at Milwaukee. Beaudette will be Oakland dealer at Hartford.

The Walt Auto Co., Milwaukee, State distributer of the Moline-Knight, has moved its offices, salesrooms and service station from 789 Thirty-second street to new and larger quarters in the downtown district, at 616 Grand avenue, Milwaukee.

SOUTHWEST

The Braucher Hardware Co., Humboldt, Kan., has installed a Ford service station and repairshop.

Oxley, Ikenberry & Stanley, Quinter, Kan., have completed a $6,000 garage.

The St. John Battery Co., St. John, Kan., has opened a Willard service station, with C. G. Hilton as manager.

Bert McCullough, El Dorado, Kan., has opened a service station on Third Avenue and Main Street.

W. R. Kohler, Iola, Kan., has bought a garage on South Street.

Ira Lumber, Abilene, Kan., will build a Studebaker garage on the site of the Clewell blacksmith shop, which he recently purchased.

Surrite Brothers, Dwight, Kan., have bought the Jacobs garage.

The Jefferson Highway Garage, Baxter Spring, Kan., has been opened to the public.

J. A. Wheeler, Mountain Grove, Mo., is erecting a garage.

Fairmount Garage Co., Mt. Washington, Mo., has bought the Ream's garage.

R. Kelley, Maywood, Mo., has sold his garage to J. L. Cook.

Boone Barron, Bunceton, Mo., has bought the Bunceton City Garage.

Alcott Motor Car Co., Chillicothe, Mo., is erecting a building, which will feature a large general display room.

W. W. Marling, Elsberry, Mo., has bought a concrete block building in which he will open a garage.

J. W. Channell, Weatherby, Mo., has opened a garage and repairshop.

Townsend & Millsap, Rockport, Mo., have opened a garage.

E. C. and **Joe Matthews,** Sikeston, Mo., are erecting a garage.

Roy and **Hugh Renfro,** Trenton, Mo., have bought the garage of Forest Beard.

W. J. Bostic, Arkansas City, Kan., recently purchased the Union Motor Co.

The Fry Brothers, Frederick, Okla., are opening a garage.

C. A. Moncrief, Perry, Okla., has quit the garage business.

The Auto Wrecking & Supply Co., Clay Center, Kan., is moving into new quarters.

C. B. Riggs & Son, Herington, Kan., has purchased the stock and business of the Ford Agency from A. D. Martin.

Will Barnett and **Leslie Barnett,** Colony, Kan., are opening a garage.

Butler & Baily, Centerview, Kan., are erecting a garage.

Constable & Wendelin, Ludoll, Kan., have opened a garage.

Frank Burnsides, Commerce, Kan., will open an automobile repairshop.

O. R. Ames, Moline, Kan., has bought the automobile business of Amos & Sackett.

Frank Hudson, Nashville, Kan., has bought the garage of A. H. Hoyer.

The Simpson-Clark Motor Car Co., Salina, Kan., are moving into new quarters.

Axel Lindgren, Topeka, Kan., has opened a repairshop.

Claude L. Coggins, Wamego, Kan., is erecting a 25 x 60 ft. garage.

J. M. Throckmorton, Wichita, Kan., has bought a half interest in the Briscoe Automobile Co.

The Harry Newman-Johnson Co., St. Louis, has opened a showroom for Hal cars at 2646 Locust Street. This is the Chicago Harry Newman.

The J. W. Leigh Motors Co., St. Louis,, has removed to 3204 Locust Street to obtain larger sales room and space for an Apperson service station.

The Auto Device Sales Co., St. Louis, distributer of the Perry Auto Lock, has opened a salesroom at 3312 Locust Street.

The Universale Tire & Rubber Co., St. Louis, has moved into larger quarters at 3216 Locust Street.

The Moon Motor Co., St. Louis, has leased showrooms at 3313-15 Locust Street, which are to be built at once.

The Auto Device Sales Co., St. Louis, has leased a showroom at 3310 Locust Street, Plaza Hotel Block, for an accessory store.

John F. Renick, St. Louis, former oil salesman and a member of the Board of Aldermen, has been named salesmanager for the Ayres Automobile Co., Ford agents.

The Moerschell Electric & Auto Co., St. Louis, has added Rayfield carburetors to the lines handled. An official Rayfield service station will be maintained at 2944 Locust Street.

Midway Auto Co., Little Rock, Ark., Chas. E. Forrest and J. S. Haney, proprietors, in addition to its old location at 410 Louisiana Street has leased adjoining quarters at 412 and 414 Louisiana Street. The original location will be used as a garage and repairshop with increased capacity for storing 70 cars. Having taken the agency for the Davis car the new location will be used as display rooms, offices and the sale of accessories.

The Warren Auto Co., Warren, Ark., Studebaker dealer, will open a service garage.

The Motor Car Supply Co., Little Rock, Ark., is installing a hydraulic press for placing solid tires on truck wheels, the first of its kind in the State.

The Green Motor Car Co., Little Rock, Ark., has moved into new quarters at 605 West Markham Street.

The Arkansas Tire Co., Little Rock, Ark., has opened a store at Fifth and Center Streets and will open branches throughout the State to handle tire seconds. C. D. Crawford is manager.

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The Weber Motor Car Co., St. Louis, has opened a used car salesroom at 307 North Twenty-third Street.

Andrews & Chipp, New Hampton, Mo., are now located in their new garage.

J. H. Minton, Portageville, Kan., and New Madrid, Kan., is erecting a garage at each of these points.

Johnson & Garrett, Purdin, Mo., have opened a garage.

Moss & Davis, Princeton, garage owners, have opened a branch garage at Mercer, Mo.

J. T. Collins, Shelbina, Mo., will open a garage.

Oney Deal, Mt. Leonard, Mo., garage owner, is moving his business to Houstonia, Mo.

Crowder & Sadewhite, Marshall, Mo., have completed their garage and will be open for business soon.

Dee Zink, Appleton City, Mo., has bought the garage of William J. Schuller.

Lesslie & H. Kelly, Barnett, Mo., has bought the garage of M. J. Ratcliff.

The Blacet Garage & Machine Works Co., Glasgow, Mo., is erecting a $20,000 building.

E. B. Cannon, Holden, Mo., will open a garage and auto supply store.

Moore & Howard, Hollister, Mo., are erecting a new building for their garage.

The Lee Motor Car Co., Chillicothe, Mo., will soon open a service station and salesroom.

Rush Straw, Deepwater, Mo., has bought the garage of Elsworth Cramer.

E. E. and R. S. McMeans, Eldon, Mo., have purchased Fred Lawhaugh's interest in the City Garage.

Bird Bros., Fairfield, Mo., will open a garage.

W. A. Schade and **George C. Dahke,** Manhattan, Kan., have opened a garage and salesroom.

W. G. Henry, Osborne, Kan., will open an automobile repairshop soon.

Quincy Smith, Osborne, Kan., has sold his garage to T. F. Fairbanks, T. A. Alvey, and Raymond Mock.

Frank Super, Penokee, Kan., is building a garage, 40 x 48.

J. B. Chinn, Powersville, Mo., has bought the garage of Rowan & Rowan.

The Lee Companies, Salina, Kan., will erect a garage.

Chas. Ekhart, Hanover, Kan., will erect a 42 x 120-ft. garage.

R. L. Jackson, Hill City, Kan., is erecting a garage.

The Doerr Co., Larned Kan., is building a garage.

Messrs. Barton Blakeslee and **Guy I.** Watt, Independence, Kan., recently bought the Independence Motor Go. Garage.

B. O. Lucas, Iola, Kan., will build a garage.

Owens Brothers, Levant, Kan., are building a garage.

Frank Evans, Lawrence, Kan., is the new owner of the Auto Accessory Co.

The Evans Auto Machine Works, Leavenworth, Kan., has opened a new garage.

John L. Stafford, Leonardsville, Kan., is erecting a garage.

T. J. Collier, Marquette, Kan., will erect a garage.

Harry Nesley, Mulvane, Kan., is building an $8,000 garage.

George Biddinger, Beloit, Kan., is enlarging the Midland Garage.

"Teddy" Brown, Burlingame, Kan., is erecting a garage.

John W. Meicher, Coldwater, Kan., has bought the Coldwater Garage from Edward Roux.

Harry McGovney, Coffeyville, Kan., has opened a Battery Repair shop.

Wathen & Magnuson, Formosa, Kan., are the successors to the firm of Ramsey & Magnuson, garage and repairshop.

W. C. Wahaus, Easton, Kan., is opening a first class garage.

J. T. Veach, Earlton, Kan., will probably erect a garage.

William Taylor, Alvo, Neb., has leased the Linch Garage.

J. M. Jessen, Ainsworth, Neb., has sold his interest in the Ainsworth Garage to his partner, James R. Sage, who will conduct the business alone.

The King Motor Co., Wichita, Kan., will build a $14,000 branch office and salesroom.

Harry Nessley, Mulvane, Kan., Ford dealer, will erect a garage.

SOUTH

The Burton Auto Co. has been incorporated at Nashville, Tenn., to distribute the Stearns-Knight.

The White Co., Cleveland, has begun the construction of a sales and service station at Memphis, Tenn., for White cars.

The D. P. Weeks Co., Tampa, Fla., has awarded contracts for the construction of a fireproof garage and machine shop.

M. H. Greeson, Tampa, Fla., will remodel his theater for a garage. A showroom will occupy the first floor and a garage, with capacity for 40 cars, will be on the second floor, to be reached by a ramp.

The Richmond, Va., branch of the Kelly-Springfield Tire Co. has been opened at 705 West Broad Street. E. J. Benson is manager.

W. H. Weber, Montgomery, Ala., is new manager of the Bramlitt Motor Car Co., at Birmingham, Ala., Scripps-Booth dealer.

L. S. Sanders, Nashville, formerly manager of the Nashville Automobile Exchange, has joined the staff of the Newsum Auto Tire Vulcanizing Co.

The Hirsig Auto Supply Co., Nashville, has discontinued its retail department.

The Nashville, Tenn., branch of the Fisk Rubber Co., has been opened at 907 Broadway. W. E. Cunningham, of the Fisk service in Chattanooga, is manager.

The Commonwealth Motor Co., Richmond, Va., has been named distributer for the Oldsmobile and will open a salesroom at 1837 West Broad Street.

The Burton Automobile Corpn., Nashville, has been organized to take over the business of the Burton Auto Co., Stearns-Knight dealer. James K. Burton remains head of the company.

The Hudford Co., of Tennessee, Nashville, has been made dealer for the Hudford truck. C. B. Pennock is manager.

PACIFIC COAST

H. O. Harrison, W. W. McDonald, George Peak, A. W. Ralph and **T. A. Berger** have organized a new firm under the name of Harrison Motor Car Co., and will handle the Peerless car and Republic trucks in San Francisco. Salesrooms and service station have been opened at 311 Golden Gate Avenue.

The Du Broy Motor Co., San Francisco, has secured the Mitchell agency and opened temporary sales rooms at 661 Golden Gate Avenue.

CANADA

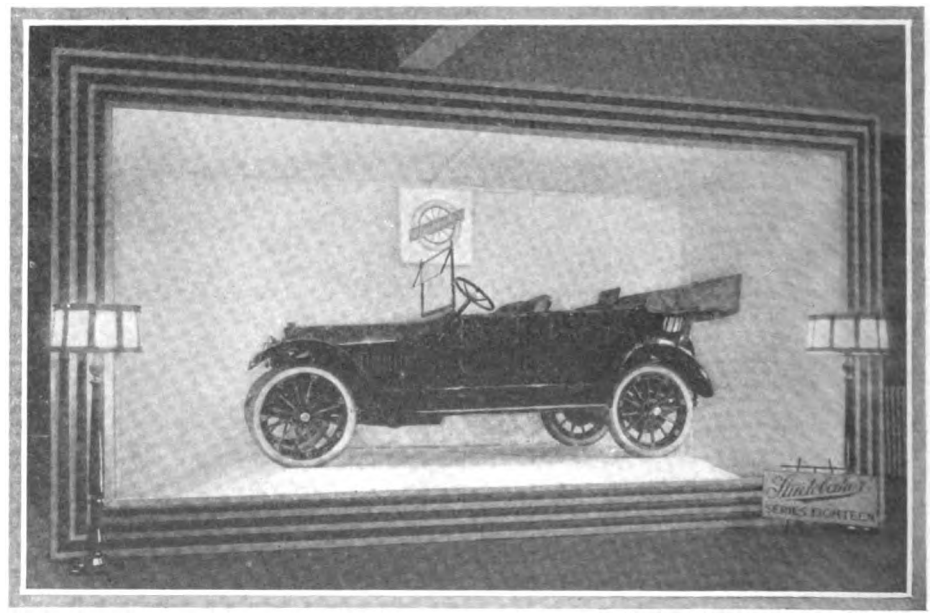
The Manitoba Motor Exchange, 391 Portage Avenue, Winnipeg, is opening up a used car business. The manager is J. H. Porter, who is now conducting negotiations for an agency for a high-grade car.

The R. L. LeBaron Auto Supply House, Sherbrooke, Que., former McLaughlin Buick dealer, will act as distributer this year for the Studebaker, Hudson and Franklin, and Federal trucks, in the counties of Sherbrooke, Stanstead, Compton and Richmond. Le Baron has secured the distributing agency in these counties for the Goodrich, Partridge and Maltese Cross tires.

The Western Canada Motor Car Co., Ltd., Winnipeg, has opened a branch in Regina under the management of Edward Moynan.

The Dominion Motor Car Co., Winnipeg, has appointed R. D. Roach service manager. Roach was formerly with the Ford company.

Here's a Novel Car Display

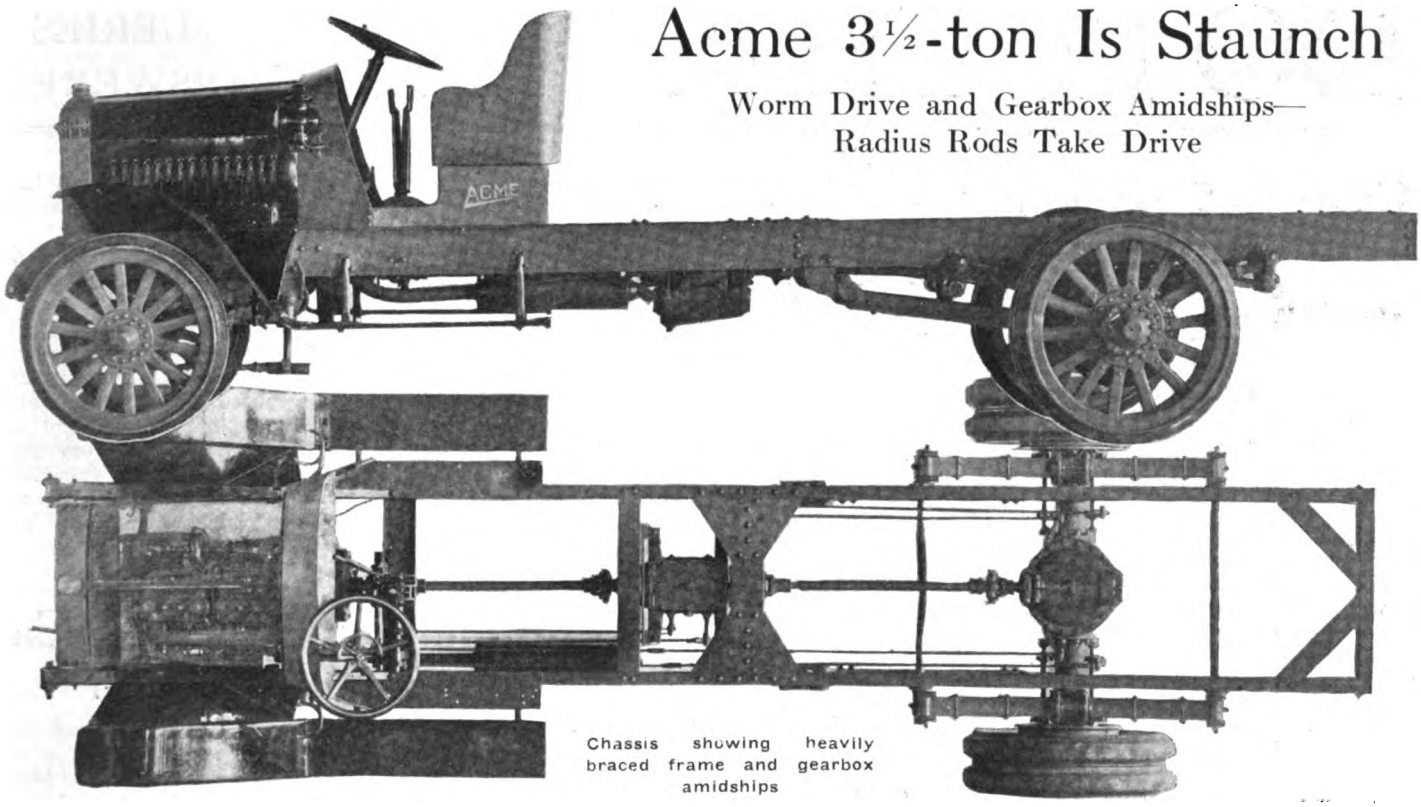


This picture frame effect cost the A. W. Haile Motor Co., Buffalo, N. Y., only $50 plus real brains. The photograph depicts a window of the salesroom, and was taken by artificial light through plate glass. The car is set on horses, which are covered with white material, and the frame is placed about 8 ft. back from the window-pane. Lights are installed in the window and at night when no other illumination is allowed in the salesroom the display is most effective

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Acme 3½-ton Is Staunch

Worm Drive and Gearbox Amidships—Radius Rods Take Drive



Chassis showing heavily braced frame and gearbox amidships

THE new 3½-ton Acme, made by the Cadillac Auto Truck Co., Cadillac, Mich., is built for heavier duty than the 1 and 2-ton models, having a pair cast Continental engine with cylinders 4½ x 5½ rated at 50 hp., a gearset of the individual clutch type placed amidships instead of in unit, a specially heavy reinforcement at the middle of the frame, a tank cast radiator and worm drive. It sells for $3,000.

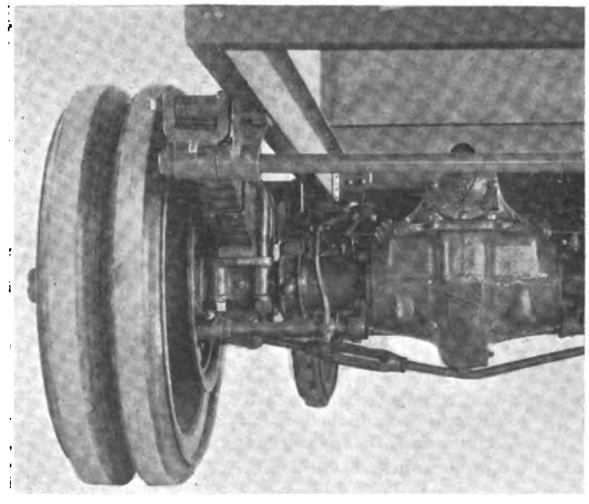
The new placing of the gearbox, the heavier frame, made of rolled channel steel instead of pressed steel; the use of a dry-plate clutch instead of a dry-disk, and the fitting of radius rods represent the chief departures.

The new radius rods are an innovation and are designed to avoid the excessive cost of rear springs heavy enough to take Hotchkiss drive on so large a truck; the torque, however, is taken by the springs. For simplicity, the radius rods have been made of pressed steel and are sufficiently flexible so that they are merely jointed one way, thus taking the side stress on them by flexure. This greatly simplifies their connections so that universal joints, spherical seats, and many lubrication points have been avoided.

The engine is located under the hood and is supported from the main frame on three points. Centrifugal pump water circulation through a finned tube cast case radiator cools the engine. A Rayfield carbureter, fed by a Stewart vacuum system from a tank beneath the driver's seat supplies the fuel. Electric lighting equipment is provided for, and is fitted at extra cost. Ignition is furnished by an Eisemann high-tension magneto with fixed spark advance. A Pierce speed controller limits the engine to 1200 r.p.m.

DETAILS OF THREE MODELS

Capacity, lbs.	2,000	4,000	7,000
Price	$1,575	$2,200	$3,000
Wheelbase, in.	128	148	168
Tires, front	34x3	36x4	36x5
Tires, rear	34x4	36x6	40x5d
Bore	3½	4½	4½
Stroke	5	5¼	5½
N. A. C. C. H. P.	19.61	27.20	32.40
Speed, r.p.m.	1,700	1,300	1,200
Speed, m.p.h	22	17	14
Gear, ratio in high gear	7¾-1	8½-1	10¼-1
Final drive	Worm	Worm	Worm



Rear view showing spring suspension and radius rods

The driveshaft is in two sections, each having two universals. The forward section connects clutch and gearbox and the rear, gearbox and rear axle.

The gearbox is a constant mesh design and consequently the gears cannot be stripped through careless handling. All gears are idle on direct drive. Each gear on the mainshaft, instead of being splined to the shaft, is mounted on ball bearings, and connection between it and the shaft is obtained through a sliding dog clutch.

Three speeds forward are provided, giving ratios in the gearbox of 4 to 1, 2 to 1 and 1 to 1; and with a rear axle ratio of 10 1/3 to 1 the total reduction is 41 1/3, 20⅔ and 10 1/3 to 1. The face of the gears is 1½ in.

A Timken, floating, worm-driven axle is used with a double set of internal brakes acting on 21-in. drums.

Springs are the Detroit self-lubricating type, their shackles supported by transverse rods mounted under the frame.

The truck has left steer with central levers and is completely equipped, including seats, lamps, horn, jack and tools. The overall length of the chassis is 243 in. and it is designed to accommodate a 14 ft. body as standard. Although the wheelbase is 168 in. the truck will be furnished with a longer wheelbase if desired. The loading space is 150 in., and the turning radius is 29 ft.

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DO IT THIS WAY - QUERIES ANSWERED

Causes of Galloping Motor

Editor Motor World: Why do most Buick D75's roll or gallop when idling? Is there a remedy?

I have an International truck which refuses to run beyond a few explosions. It went dead on the road. Previous to this it popped and smothered in the carbureter when accelerating, due very obviously to ignition defects. In timing, mechanically, and in the carbureter, which is a Holley, it seems all right. It has a Bosch DU4 magneto on it, which was put there 2 weeks ago new. New magnetos do not apparently remedy the defects, which appear to be in ignition. Kindly advise.—O. W. Lutz, St. Paris, O.

Obviously the reason for any motor rolling is due to unequal explosions in the different cylinders. Usually this is due to leaking valves or pistons or leakage past the intake valve guides. First make sure that there is no leakage at any of these points.

Rolling may also be due to improper carburetion, particularly if there is a tendency towards condensation in the manifold, in which case some of the cylinders may get some liquid gasoline.

The spark plug points should be the same distance apart, and all spark plugs must be in good condition, likewise there should be no partial short-circuit anywhere in the distributer wiring and all brush segments in the distributer should be cleaned and smoothed so that the brush may make equally good contact with all of them.

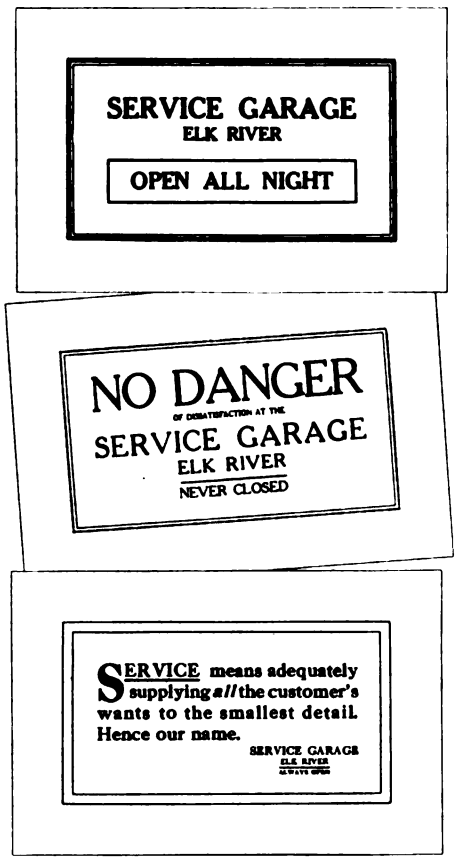
In looking for the trouble on your International truck, first be sure that the valves are operating properly and are not sticking, then examine the ignition. Be sure the magneto drive has not slipped. The fact that it popped back into the carbureter would indicate a sticking valve or possibly a leaky intake valve, which might be due to lack of clearance between the stem and the pushrod or due to carbon on the seat of the valve. It might also be due to improperly timed ignition or a short-circuit might cause the backfire.

Are you sure it pops back, or did it explode in the muffler? The reason we ask this is because the two terms are often confused. If the latter were the case, then it seems much more likely, if the trouble is in the ignition system, as you suspect, that you are obtaining an intermittent spark in one or both cylinders. This may be due to lack of adjustment of the breaker points, to sticking of the breaker mechanism, to a loose or badly worn distributer brush, to badly worn or dirty distributer segments, to loose or short-circuited wires or connections. Some of the wires may be temporarily short-circuited, but every once in a while the defect cures itself long enough for you to obtain a few explosions.

In fact, the most likely explanation of your trouble, regardless of whether the motor died by popping back or exploding in the muffler, is that there is a temporary short-circuit some place. Most likely this is in the switch wire, which short-circuits the magneto when the switch is in the "off" position. If you mill remove this wire, it is quite likely that the engine will run all right. If this is the case, then you should examine the wire and the switch carefully for a short-circuit. But if not, examine all the wires and connections to the magneto carefully, but do not attempt to take the magnet apart further than removing the covers to the distributer and breaker box. Be sure that there are no magneto parts missing. This has happened.

We believe if you follow all the directions we have given you, that you will find your trouble, but if not we would advise you to go over every detail of the motor carefully. It is not very hard to find trouble if you take nothing for granted. Check the valve timing and the spark timing and all other details. Obviously, if every part of your motor is in perfect condition, it must work, and if you go over each detail carefully you should soon find your trouble.

Advertising for Transient Business



These three advertisements may be used in various ways to obtain transient trade. They may be distributed broadcast among owners in neighboring centers in the form of printed cards. They may be printed on placards and placed in various hotels in towns within touring distance. The upper two make excellent road signs and the center one is particularly good. It is in pleasant contrast to the many bogus danger signs that so many garages and local touring clubs have set up at every slight bend in the road

Making an Old Car Into a Racer

Editor Motor World: Would like you to tell me how to rebuild a car into a racer. I have some ideas but I suppose you have still better. I have a car; she has about 35 hp. I want to make a good powerful car out of this.—Harry Jenson, 112 Harper Ave., Detroit.

There are many things you might do to increase the speed of your car, first of which is to put it in perfect mechanical condition.

Wind resistance should be reduced to a minimum, fenders should be removed and as perfect a streamline body as possible, should be fitted. A narrow, pointed radiator is an advantage, although it is expensive.

The steering wheel should be raked to provide for lower seating of the driver and mechanic.

You will find that just making these few small changes will add considerably to the speed of your car. Of course, with the reduced weight you should remove one or more leaves from each of the springs and the springs should be taped, or wound with heavy cord, to hold the leaves together. It is also desirable to fit shock absorbers.

It is hard to say whether you will gain anything by installing a higher gear, for it may be with the reduced wind resistance, that the speed of the car will increase automatically and nothing would be gained by putting in a higher gear. A higher gear is only advisable when the gear of the car is so low that the maximum power of the engine is developed long before maximum car speed is reached. Obviously, if you can select a gear which will allow the engine to develop maximum power at maximum car speed, you have ideal conditions, but you can readily see that if this condition has already been obtained with a 3½ to 1 gear which we will say for the sake of argument is a stock gear, something would be lost if a 2½ to 1 gear was installed.

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You might increase the speed of your motor by changing the timing, installing a larger carbureter, and advancing the setting of the magneto. Increasing the lift of the valves would also help and if it is feasible, it would be a good idea to increase the compression. All these things are expensive, however, and we do not know just how far you want to go. It is difficult for us to give you a satisfactory timing as this depends on the individual car. The reciprocating parts should be lightened by drilling the pistons, or if possible, it would be a good idea to put in aluminum pistons. You might also increase the bore by reboring the cylinders.

If you intend to do continuous high speed, you should have an auxiliary oil system which will allow you to introduce oil directly into the crankcase. This might consist of an oil tank at the rear operated by air pressure using a bicycle foot pump, or you might install the oil tank under the hood and have it feed the crankcase by gravity, being controlled by a valve from the dash.

Reversed Connecting-rods Hit Cams

Editor Motor World: Would you please tell me how to time the valves on an Apperson four-cylinder, 40-h.p. touring car?

I have tried to time it and there is only one place I can find to set the gears where the connecting rods don't hit on the cams on both camshafts and then it isn't in time.

I took out the camshafts and crankshaft and put them in the lathe and they are perfectly straight and the bearings are in line but the cranks hit the cams on both sides only when you set the gears in one place and then it isn't in time. Please tell me if this is right that the cranks should hit the cams and also please tell me how to time it. The gears are new ones. Thanking you for all favors, I am—B. C. Church, Stoy Machine Works, Stoy, Ill.

P. S.—I am a subscriber to Motor World and like it fine, couldn't get along without it

The only possible reason we can see for your difficulty is that you have the connecting-rods turned around.

The intake valve should open on top dead center.

We shall be glad to answer any further questions but feel you will save time if you write direct to the Apperson factory, Kokomo, Ind., inasmuch as this city is much nearer than New York.

No Loose Bearing Indicator

Editor Motor World: Will you kindly give us information as to where an instrument can be bought which will record the location of a loose bearing in an engine, or which cylinder is missing.

This instrument mounts on the dashboard and troubles are indicated by an arrow.—Marshall Wells Hardware Co., Automobile Accessories Dept.

We know of no instrument which will indicate both a loose bearing and a missing cylinder.

An instrument built on the principle of a doctor's stethoscope is the best instrument we know for locating knocks.

Many instruments have been brought out for indicating missing cylinders and various other ignition troubles, but we do not believe any of them have been satisfactory. Anyhow, there is no instrument that is built just to determine which cylinder is missing. It is such a simple matter to locate a missing cylinder that we cannot see the need for this instrument. Furthermore, ignition trouble is so rare that we believe the instrument would be more trouble than it is worth even assuming that it was difficult to locate the missing cylinder. There are few motorists who could not find this trouble in short order.

Inventory Card Prices Changed

The prices of the Motor World inventory cards given in the Jan. 31 issue, page 51, are the original prices, and, inasmuch as the prices were raised some time ago, they are incorrect. The new prices are: Size 4 x 6, $1 per 100; $9 per 1000. Size 5 x 8, $1.25 per 100; $12 per 1000. Outfit 46A, consisting of 500 cards, 4 x 6, alphabetical guides, and oak cabinet, $8.75. Outfit 58A consisting of 500 cards, 5 x 8, set of alphabetical guides and oak cabinet, $11. They are manufactured by A. Bobbe & Co., 320 Broadway, New York City.

Books Will Not Give Battery Knowledge

Editor Motor World: Please advise by return mail of the proper book or books which will enable us to master the care and repair of storage batteries, as used in connection with starting and lighting for automobiles.

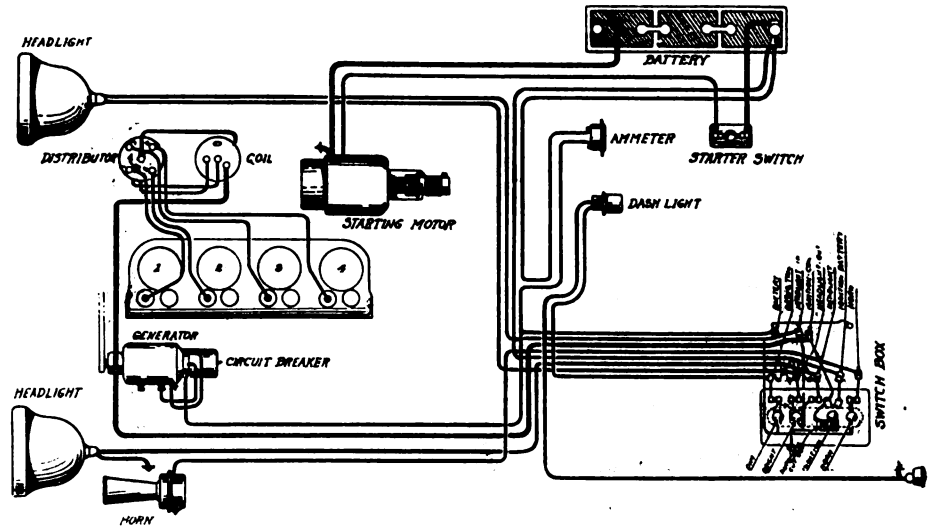
We are opening up, in connection with our garage, a service station to care for batteries, and would thank you to advise us what books to buy.—Patterson & Ingalls Motor Car Co., Montgomery, Ala.

There is no book which will enable you to master care and repair of storage batteries. This is something that can only be learned by experience and we should advise you to go to one of the storage battery service stations and stay several weeks. Repairing batteries is an exceedingly difficult proposition and we do not believe that you should go into it unless you or one of your staff is an expert in this line of work.

Of course, you might get what literature there is on the subject and start in in a small way, gaining your experience as you work. The objection to this method is that you would learn slowly and your work would be so poor that it would make enemies of your customers. There is no branch of automobile work that is as exacting as storage battery repair work. A novice may get away for a short time, with repairing engines or tires, or throw a bluff in some other department, but when it comes to repairing storage batteries a man must know his business.

There is no book on the subject which is very complete

WIRING DIAGRAM OF OVERLAND 85

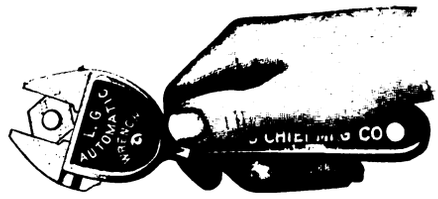


Voltage regulation is by a reversed series field. The generator begins to produce current at 7½ m.p.h. and increases until 20 m.p.h. is reached. The dash light and the tail light are in series

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ACCESSORIES



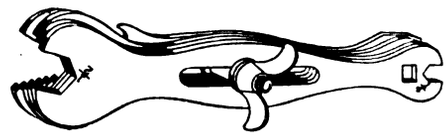


L G AUTOMATIC WRENCH

The harder the handle is pulled the tighter the jaws grip the nut. Price $1. Red Chief Mfg. Co., Louisville, Ky.

MILLER TIRE

The Miller Method and the Miller Moulded are shown at the left and right. The latter is designed to meet the demand for a popular-priced tire and is the same as the Miller Method except that the latter is heavier.—Miller Rubber Co., Akron, O.



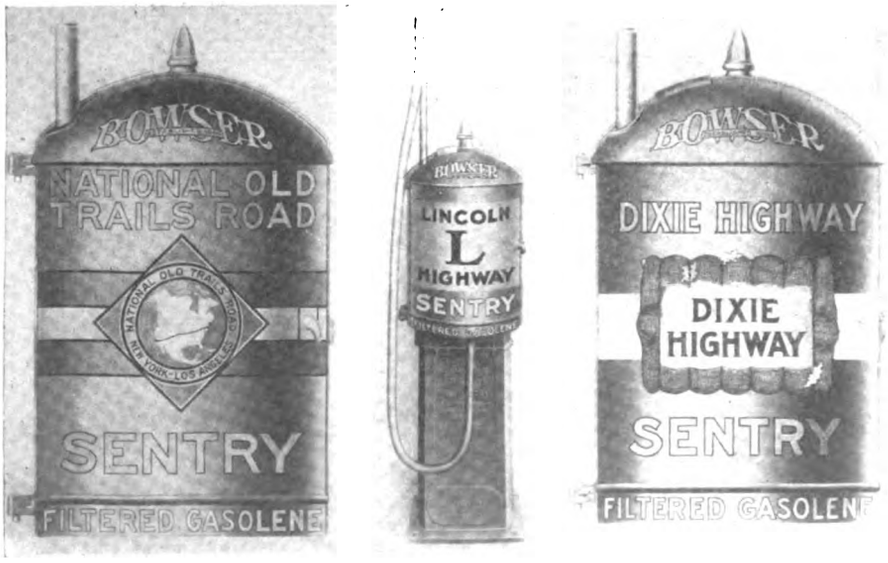
RONSON WRENCH

The new model comprises eleven tools in one, eight wrenches, an alligator wrench, a screwdriver, and a bottle opener, combined in four separate members held together by a wing nut and screw. The tool to be used is slid forward and the nut tightened, the remaining tools forming a handle.—Art Metal Works, 7 Mulberry Street, Newark, N. J.



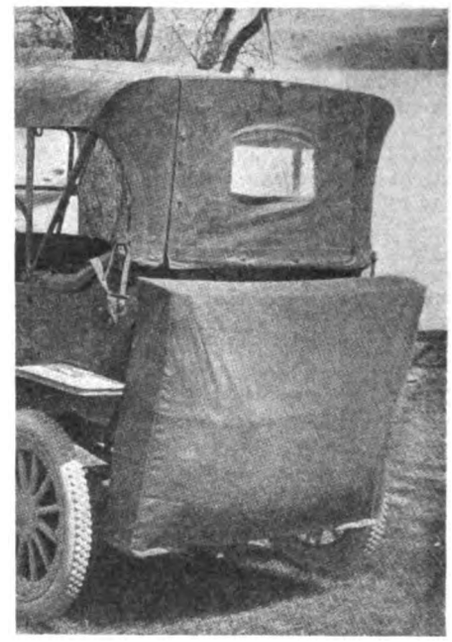
RAND REFLECTOR

The upper portion of the reflector has an inclined axis which throws the light down on the road while the lower part has a horizontal axis, directing the rays horizontally. — Rand Reflector Co., Haverhill, Mass.



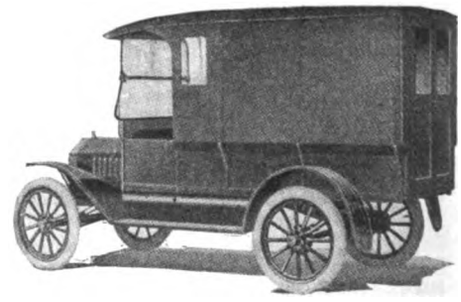
SPECIAL BOWSER CURB PUMPS

Special pumps are made for the various national highways, including the Lincoln, Dixie and Old Trails. Thus a double purpose is served, the pump acts as a road marker as well as a means of dispensing gasoline.—S. F. Bowser & Co., Ft. Wayne, Ind.



WAY AUTO-CAMP

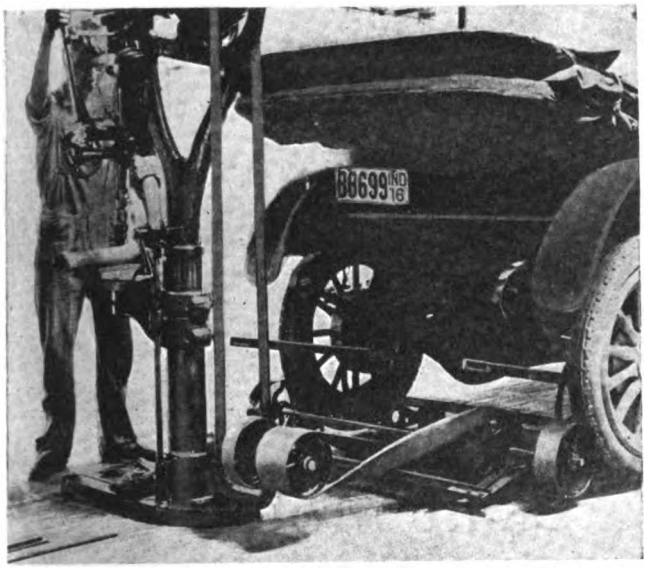
Camping outfit consisting of a tent, 7 x 9, with folding tent poles, ropes and stakes and all other necessary fittings, including a sagless spring big enough for two people, a well made cotton mattress and a waterproof case. Price $48. A more complete outfit costs $60. The whole may be compactly folded up and carried on the running-board or at the rear of the car.—Way Sagless Spring Co., E. Hennepin and Fifth Ave., S. E., Minneapolis



BABCOCK COMMERCIAL BODIES

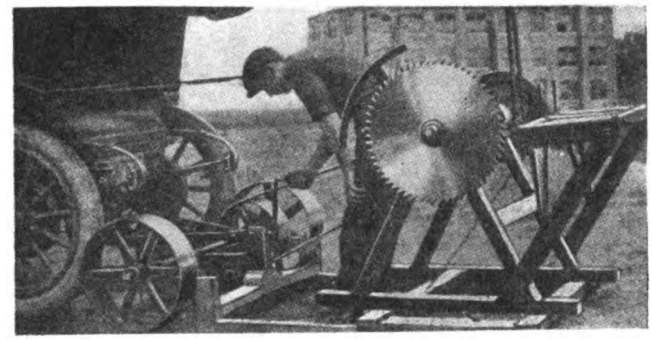
This body is applicable to the Ford and Dodge chassis. It is so designed that the open express type may be built up into a body with top curtains, steel panel sides and rear doors. It is a patented construction and is said to save 30 per cent of the weight. There are thirty-five models.—H. H. Babcock Co., Watertown, N. Y.

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HELPING HENRY

A belt power attachment which is driven by the rear wheels of the car. All but 25 lbs. of the weight of the car is supported by a framework.—Auto Power Co., La Porte, Ind.

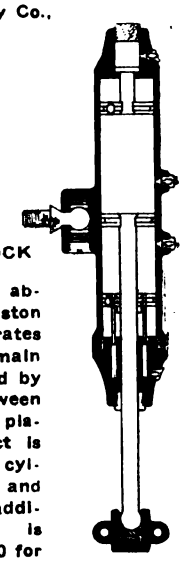


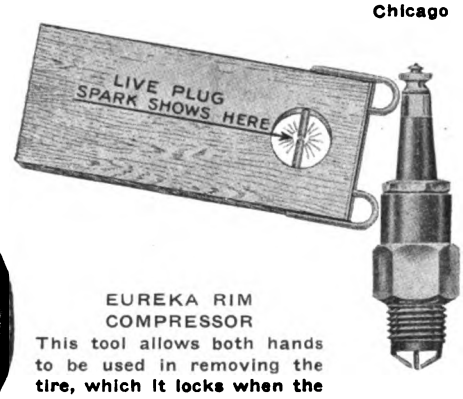
LALLY MOTOR TREAD MILL

A power transmitting device designed to fit any automobile. Price, $65; with 20-in. saw frame and 5-in. rubber belt, $90.—Lally Commercial Body Co., Everett, Mass.

JACKSON SPARK PLUG TESTER

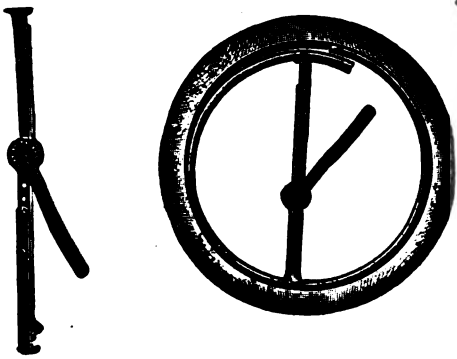
A simple device to show whether the spark plugs are working. The size of the gap may be varied.—W. M. Jackson & Co., Chicago





KANE PNEUMATIC SHOCK ABSORBER

This is a pneumatic shock absorber consisting of a piston and a cylinder and it operates in both directions. The main cushioning effect is obtained by the compression of air between the cylinder heads and the piston, but an auxiliary effect is also obtained because the cylinder head itself is a piston and the air back of it offers an additional cushion when it is pressed. Price, per pair, $20 for cars up to 2500 lbs.; $37.50 for cars up to 3500 lbs.; $45 for larger cars.—The Kane Mfg. Co., Centralia, Wash.

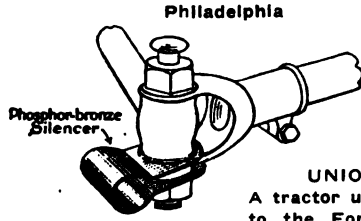


EUREKA RIM COMPRESSOR

This tool allows both hands to be used in removing the tire, which it locks when the handle is in alignment. It is designed for all transversely split demountable rims. Price $3.—Eureak Rim Compressor Co., Addison, N. Y.

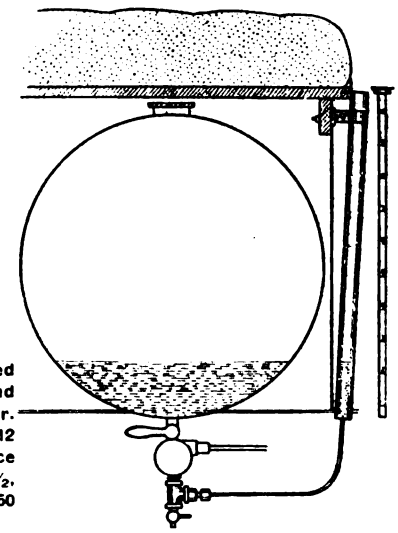
PANTHER SILENCERS

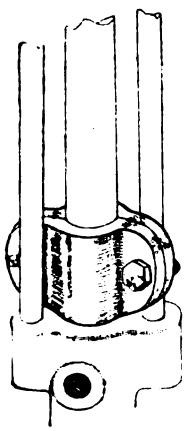
A tie-rod silencer consisting of a phosphor bronze spring which will not rust, break, or lose its tension. Price 35 cents per pair.—B-A-T Co., Philadelphia



PROGRESS GASOLINE GAGE

A gage for Fords enabling the driver to measure the level at all times. It may be installed in a few minutes. Price $2.—Issaquah Garage, Issaquah, Wash.





SAFETY STEERING DEVICE

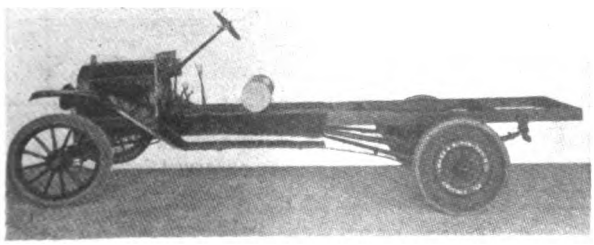
A clamp which prevents the steering wheel being turned too far either way. It is simply bolted in place on the steering wheel shaft. Price $1.—New York Coil Co., New York

MAKE-A-MOTOR-TRUCK

A Ford attachment which gives a load capacity of 1 ton. The loading space back of the driver's seat is 9 to 11 ft. Rear wheels are steel with 32 x 3½ solid tires. Price $350.—Make-A-Motor Co., 6645 So. State Street, Chicago

UNION 3-TON TRACTOR

A tractor unit which may be attached to the Ford chassis in 6 hrs., and which can haul 3 tons on the trailer. The gear ratio is 9 to 1, the speed 12 m.p.h., weight 1100 lbs., and price $375. Goodyear S. V. tires, 32 x 3½, are used.—Union Truck Mfg. Co., 250 West 54th Street, New York





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A Department of

Better Mechanics

No. 12

Adjustments of Cole Eight Motor

ADJUSTMENT is seldom necessary, usually only when the car is being overhauled. It is, however, essential that this adjustment be carefully made, as otherwise the alignment of the gears will be destroyed, and the wear on the entire assembly increased.

Evidence of Looseness

1—Any unusual noise from the front end of the engine, particularly at low speed.

2—Any backlash greater than from ¼ to ⅜ in. as measured on the tip of the fan. (To determine this, rock the fan back and forth, with the engine idle.)

3—Any great amount of slack in the driving chain, as may be felt through the oil filler hole.

TO TIGHTEN CHAIN

A normal amount of adjustment is possible by loosening the bolts holding the generator and fan assembly housing to the gearcase, and prying each up until the slack is removed. To do this:

1—Remove hood.

2—Remove oil filler cap on gear case.

3—Before loosening the generator or fan shaft assembly bolts, nick a line on each side of the retaining flange and gear housing. The generator and the fan shaft assembly must each be raised the same amount, to keep the drive shafts in alignment. These marks are used as measuring points to make these distances equal.

4—Loosen the two bolts holding the generator to the gear case flange.

5—Loosen the nut on the through-bolt at the underside of the generator bracket.

6—Loosen the four cap screws that bolt the fan assembly housing to the gear case.

7—Place a pry beneath the generator, and at the same time feeling the timing chain through the oil filler hole, pry the generator up until all appreciable slack is removed. The chain should not be tight, or it will sing, when working.

8—Tighten generator retaining bolts.

9—In a similar manner, pry the fanshaft housing upwards.

Previous Articles

Subject	No.	Date of Issue
Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains	2	Dec. 20
Maxwell—Rear axle repairs	3	Dec. 27
Chevrolet—Clutch repairs	4	Jan. 3
Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Buick—Rear axle adjustment	8	Jan. 31
Chalmers—Valve and ignition timing.	9	Feb. 7
Dodge—Brake adjustment	10	Feb. 14
Push-rod care	11	Feb. 21
Studebaker—Torque arm repair—		
Push-rod care	11	Feb. 21

The ends of the fanshaft and generator shaft butt together in the middle of the driving gear. If the generator and fan assembly housing are not both raised the same amount, the two shafts will not be in line. Hence see that the distance between the chisel marks on the fan shaft assembly housing and the gear case are made absolutely the same as those on the generator bracket and back edge of gearcase.

10—Tighten fanshaft assembly retaining bolts. Check up distance between alignment marks.

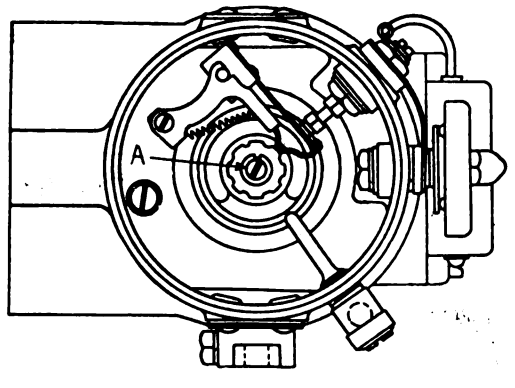


Fig. 1—Birdseye view of the breaker mechanism showing screw A which is loosened before setting breaker cam

REMOVING THE GENERATOR

OCCASIONALLY an engine will be found in which all possible slack in the chain has been removed, as the oval adjusting holes strike the bolts. This necessitates removal of the generator, and of the fan assembly, that the adjusting holes may be lengthened. To do this:

1—Drain radiator.

2—Remove radiator distance rod.

3—Remove the overflow-water L's at the cylinder head. (*This is better than removing the hose, as it is difficult to again make a tight hose connection.*)

4—Remove the overflow line from the water jacketed manifold to the radiator outlet.

5—Loosen the hose clamps at the lower radiator hose and slide them to the center of the hose.

6—Remove the radiator retaining nuts. By working the radiator from side to side, it will lift off readily. Place the radiator where it cannot be injured. Fanshaft assembly nuts have not loosened them.

7—Unsnap the distributer casing from the governor housing on the fanshaft assembly.

8—Remove all wires running to generator and distributer. *Mark them so that they may be readily replaced.*

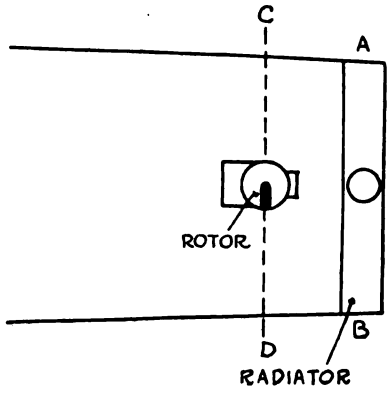


Fig. 2—Position motor brush should have when the breaker cam is properly set

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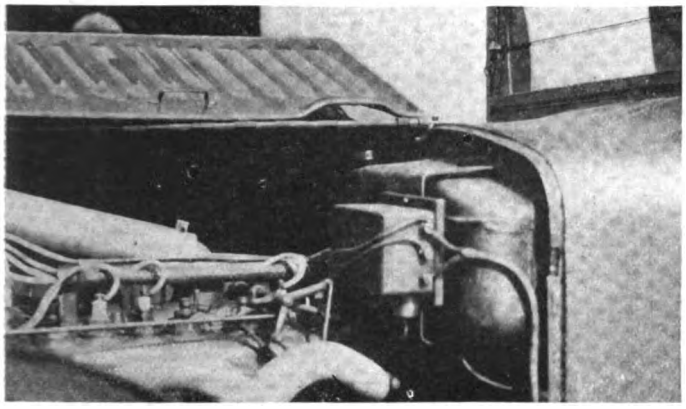
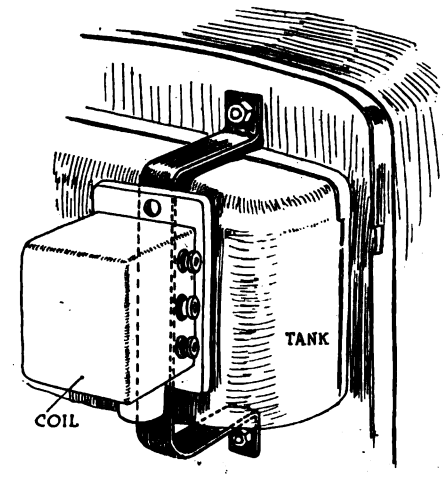


Fig. 3—Two views of the method of mounting the spark coil on the Hupmobile so that it is held away from the tank, making it more accessible and preventing the entrance of moisture



9—Remove the bolts holding the generator to the gear case.

10—Remove generator.

11—With a rat-tail file, file the hole in the bottom of the generator bracket, making it longer. *File downward*, Fig. 4.

12—In a similar manner make the holes in the gear case longer. *File upward.*

13—Replace the generator. *Do not draw bolts up tight.*

14—Remove fan assembly bolts and remove assembly.

15—File the adjusting holes longer, so that the fan assembly housing may be raised as on generator.

16—Replace fan assembly.

17—Place a lever beneath the generator and pry it upward, until all slack is removed from the driving chain. Tighten bolts.

18—Raise fan assembly housing until it has been raised the same distance that the generator was raised. The chisel marks on the brackets and housing will show this.

19—Tighten all bolts.

REMOVING FAN ASSEMBLY

IN removing the fan assembly housing, and distributer, the timing of the engine was destroyed. To time engine:

1—Turn engine until the piston of cylinder No. 1 is at the top of its compression stroke. (Cylinder No. 1 is the first one on the left side when facing the car from the front.)

2—Place spark lever 1 in. from the top of its throw.

3—Loosen set screw (A), Fig. 1.

4—Place rotor in position, and turn rotor, until the brush is just opposite in the position shown in Fig. 2.

5—Remove distributer cap, and tighten set screw (A).

6—Replace distributer cap.

ADDITIONAL ASSEMBLY

1—Replace all wiring.

2—Replace radiator, and bolt in place.

3—Replace radiator hose, packing the joints in rubber cement.

4—Replace overflow line from water jacketed manifold to radiator outlet.

5—Replace overflow water L's in cylinder heads.

6—Replace radiator distance rod.

7—Refill radiator.

8—Replace hood.

MAINTENANCE

1—Occasionally remove the filler cap, and see that the chain is not becoming loose. Tighten, if necessary.

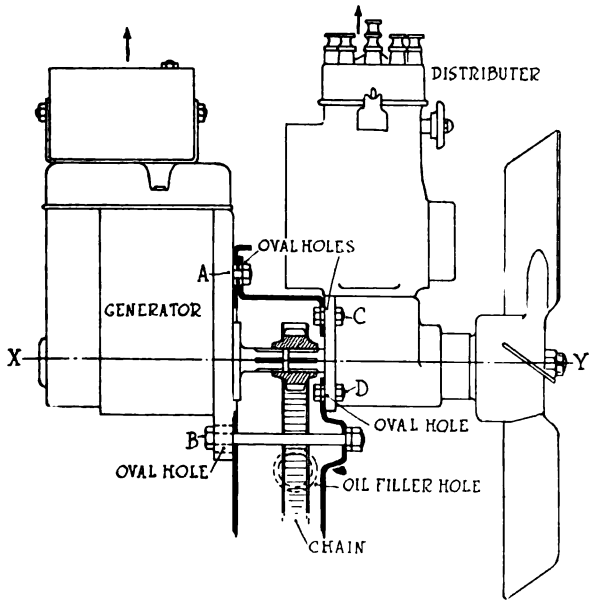


Fig. 4—Front of Cole engine showing the position of the oval holes which are filed larger to give an extended range of chain adjustment

Starting Motor Clutch Repair
Hupmobile 32

AFTER extended use, the starting clutch occasionally slips, or refuses to grab. This is usually caused by wear in the steel cylinders of the clutch dog. By the following method the same cylinders may be used, and the clutch placed in satisfactory operation without the necessity of installing any new parts.

To do this it is only necessary to remove the starting clutch and gear, clean the parts, and again assemble them. After the assembly, strips of cork, about ⅛ in. thick are inserted at the rear end of the clutch cylinder recess.

Improved Spark Coil Mounting
Series K Hupmobile

AS built, the spark coil of this model is mounted on the pan at the front of the car. This mounting is not very accessible, and also subjects the coil to moisture when washing, or driving in wet weather.

By making a U-shaped iron bracket, and bolting it over the gasoline tank in the manner shown in Fig. 3, the spark coil may be mounted on the dash. The iron strap used should be about ¼ x 2 in., and the coil may be attached to it without changing any of the present wiring system.

By this mounting, the coil is not only accessible, so that the terminals may be inspected, but is also held up out of the wet and near the exhaust pipe.

Your Department

THIS department is your own personal property; it is being run for your benefit.

Don't hesitate to write for information when you need it. When you want to know the best way to make a certain repair or adjustment, don't experiment—ask us.

Your question will be promptly answered and may later on form the basis of future articles in this department.

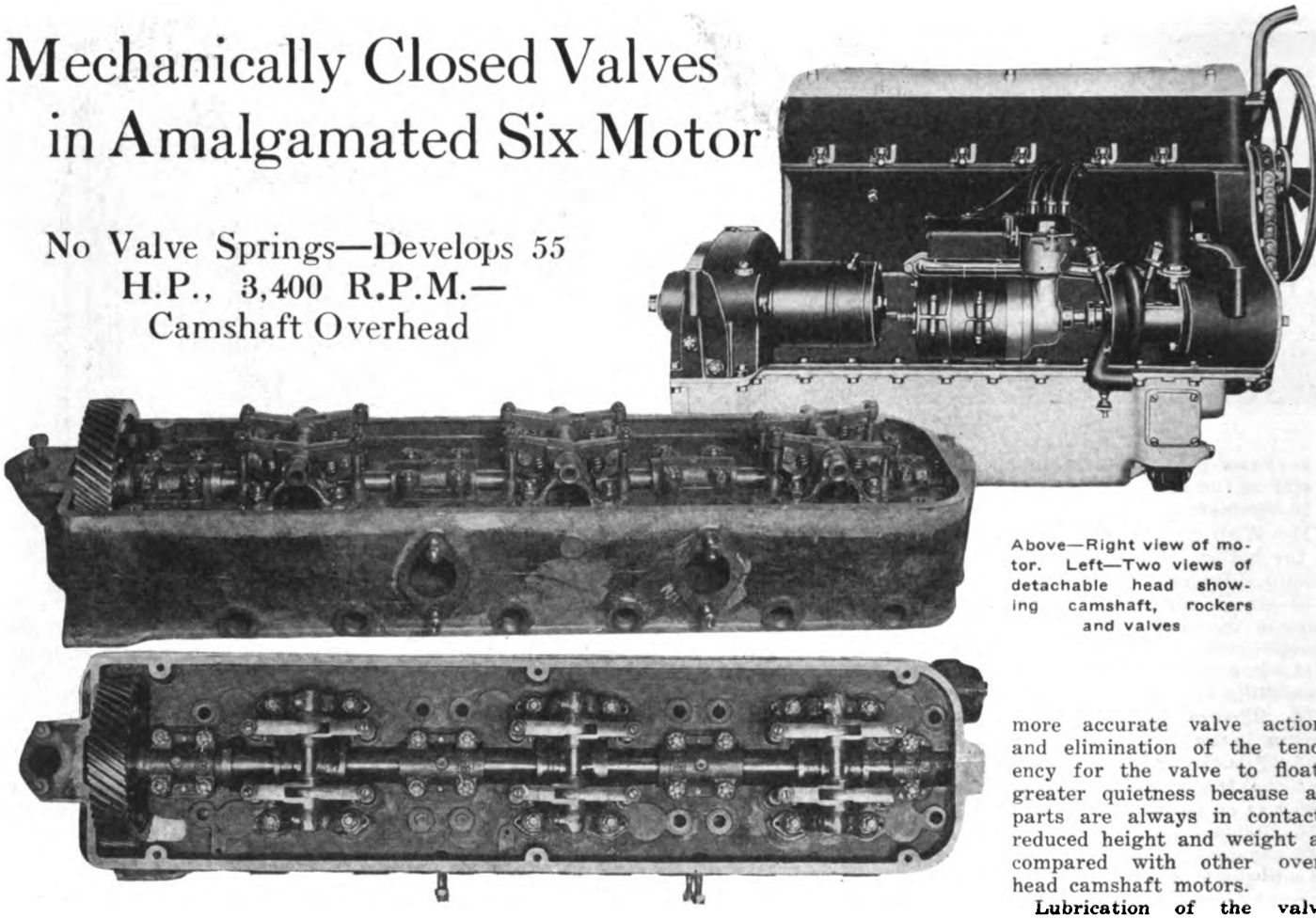
It is difficult to determine what things are giving trouble unless we hear from you.

Write often, the more frequently we hear from you the better we like it.

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Mechanically Closed Valves in Amalgamated Six Motor

No Valve Springs—Develops 55 H.P., 3,400 R.P.M.—Camshaft Overhead



Above—Right view of motor. Left—Two views of detachable head showing camshaft, rockers and valves

VALVES are mechanically closed as well as opened, and valve springs are eliminated in the new high-speed six-cylinder poppet valve 3¼ x 4½ motor developed by the Amalgamated Machinery Corp., Chicago. Despite the small cylinder dimensions the horsepower at 3400 r.p.m. is 55.

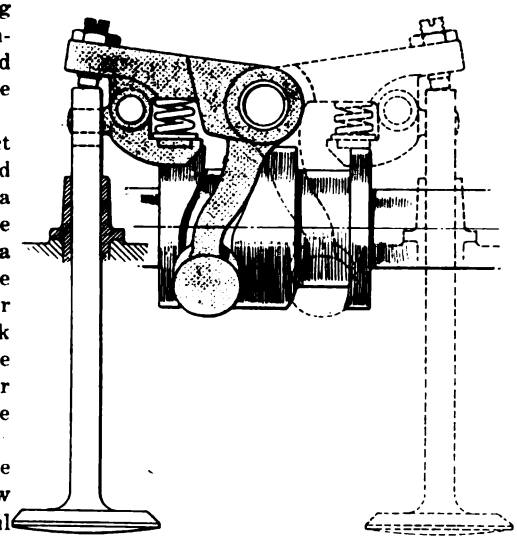
The camshaft and valve mechanism is carried in a detachable cylinder head and the valves are rocker operated. Positive opening and closing is obtained by using a cylindrical cam, the cam roller running in a cam slot cut in an enlarged section of the camshaft. There is one cam for each pair of valves.

The opening of the valve is by a direct push on the end of the valve stem and the closing is by a pull exerted by a trigger which is pivoted in the valve end of the rocker and which hooks in a slot in the end of the valve stem. The clearance between valve stem and rocker is maintained by a set screw and lock nut in the end of the rocker. To insure tight closing of the valve the trigger has a spring at its back so that the valve is pulled tight against its seat.

Greatly reduced friction and wear are claimed to be advantages of the new construction since there are no powerful valve springs to compress.

To illustrate how little power is required, the camshaft may readily be operated by running the hand over the driving gear. Consequently unusual wearing qualities are claimed. Hardened steel rollers and cams are used, but to demonstrate the wearing qualities of the construction, cast iron rollers were used in one motor, and after 20,000 miles there was no appreciable wear.

Many advantages are claimed for this engine because of its mechanically closed poppet valves, heretofore used only in some modern racing cars. Increased power at high speeds due to more accurate valve action, and elimination of the tendency for the valve to float; greater quietness because all parts are always in contact; reduced height and weight as compared with other overhead camshaft motors.



Mechanical closing has been obtained in a simple manner by using an axial cam. The valve is returned to its seat by an arm pivoted to the rocker and tight seating is assured by the spring at one end of the arm

Lubrication of the valve mechanism is thorough. A continuous stream of oil is fed to the head, where there are two overflows, one at each end, to maintain the level at ¼ in. The rear overflow returns the oil to the sump and the front one to the helical gears which drive the camshaft.

Oil is circulated by a gear pump which draws oil from the center of the oil pan through a copper pipe cast into the oil pan. It is then forced through a pressure filter and relief valve to the main oil manifold cast in the crankcase. From this there are direct leads to all main bearings. Connecting-rod bearings are lubricated through the hollow crankshaft from the main bearings.

The crankshaft construction permits of accurate balancing called for by an extremely high-speed motor. There are two large balancing disks on the crankshaft located between the connecting-rod bearings of each pair of outside cylinders. These disks are forged integrally with the crankshaft.

Valves are of Rich tungsten steel and connecting-rod bearings are high-pressure babbitt with heavy bronze backs. Cast iron pistons of the hour glass type are used, 3¾ in. long.

Cooling is by centrifugal pump with six-blade fan driven from the crankshaft by a ⅞-in. V laminated belt. Provision is made for driving the ignition distributer and generator from the pump shaft and the starter is designed to engage the flywheel.

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Accounting and Business System

By T. W. Snead

Used Cars

Editor Motor World: We are using your accounting system and are puzzled just how to enter the following transactions:

1. Mr. A. brings in a used car which we refused to trade in because he asked too much money for it, but we persuaded him to leave it here to be sold and the proceeds applied as a deposit on new car. A few days later we sell Mr. A.'s car, taking in cash, notes and another car.

2. We represent the V. Oil Co. in this territory. The Overland Co., of Peoria, orders oil from this company on credit. The company ship goods direct to the Overland Co., Peoria, mailing invoice for same to us, and we bill Overland Co. for this oil.

3. The car salesmen are working under drawing account and commission, settlement each month, in which drawing account is subtracted from commission. How do we enter weekly checks on drawing account?—F. H. COLE MOTOR Co., Bloomington, Ill.

1. Mr. A. brings in a used car and you persuade him to leave it on your floor to be sold as a deposit for a new car. You sell the car and we will say, for example, you get $350 for it. There are two ways of handling this, and the proper way all depends upon whether the party giving the note is good or whether the party to whom you sold the car will be responsible for the payment of the note. We will, for example, consider that the party giving the note is responsible, and that you got $100 in cash and $250 in a 30-day note in payment of the car. You would enter the transaction as follows:

Enter As Follows

Under the cash received column you would place the $100 on the debit side and under all other accounts column you would enter the $250 and in the explanation column say note receivable, 30 days 6 per cent, John Jones, and these two entries would constitute your $350 debit entry. On the credit side of all other accounts you would credit the $350 to an account which we call Reserved for Customer's Deposit, Mr. A., and this would show up on your financial statement similar to entry under accrued liability, which you will see made out for you on page 32 of the System pamphlet. Here we show an account call reserved for allowances or commissions, etc. In other words, you are liable for this amount to Mr. A. until you have actually sold him a car, and he owes you the $300 and more besides.

Now if you were not absolutely sure of the credit of the party giving you the note you would enter only the $100 on form 1 and give Mr. A. credit under the account called Reserved for Customers' Deposits, giving him credit only for the $100. You would hold the note on a memorandum until the same had been paid to you and then treat this $250 the same way that you did the $100 cash received.

Now to carry the transaction entirely to its close, you sell Mr. A. a car for, we will say, $800 and you would make the sale on form 1, charging under customers' account Mr. A. $800, and crediting the $800 to your car sales income account, then you would make a journal entry on your form 1, charging on the debit side under all other accounts the account called Reserved for Customers' Deposits $300, and this charge or debit will offset the credit that you made the previous month under the same account. To offset this $300 entry on the debit side you would place on the credit side this $300 under customers' account Mr. A., and this $300 credit would offset part of the $800 that you had charged to him for the sale of the new car.

Sale of Oil

2. You represent the V. Oil Co. in your territory and another company of Peoria purchased oil direct of the V. Co. You would make the sale to the Peoria Co. as soon as you had been advised by the V. Co. that the oil had been shipped to the Peoria concern. This sale would be just as if you had sold the oil from your own stock room charging under customers' accounts, The Peoria Co. and crediting the income account sale of oil.

Thus at the end of the month when you are ready to pay your bills for the current month, you will, of course, find in front of you the bill for this oil that was shipped, after you had verified the fact that you had charged the Peoria concern for this oil you would enter this bill on form 2 along with all the other bills from the V. Oil Co. and you would charge the cost of the oil under the oil department to an account which we call Cost of Oil Sold and under all other accounts on the credit side you would credit the V. Oil Co.

In other words on form 1 you charge The Overland Co. at the sales price and on form 2 you have credited the V. Co. with the cost of the Oil. At the end of the month of course you will subtract the cost of goods sold which in this case is oil from your income under income account oil department which will give you your first profit on oil sold. From this you will subtract your current expenses in the order department which will give you your net profit in this department of your business.

Commission Accounts

3. Concerning drawing accounts, and commission accounts with your car salesmen, let us take for example, that you have a salesman working for you whose name is John Jones and that he draws each week $15 on a drawing account and he gets at the end of the month a commission of 10 per cent on all of his sales.

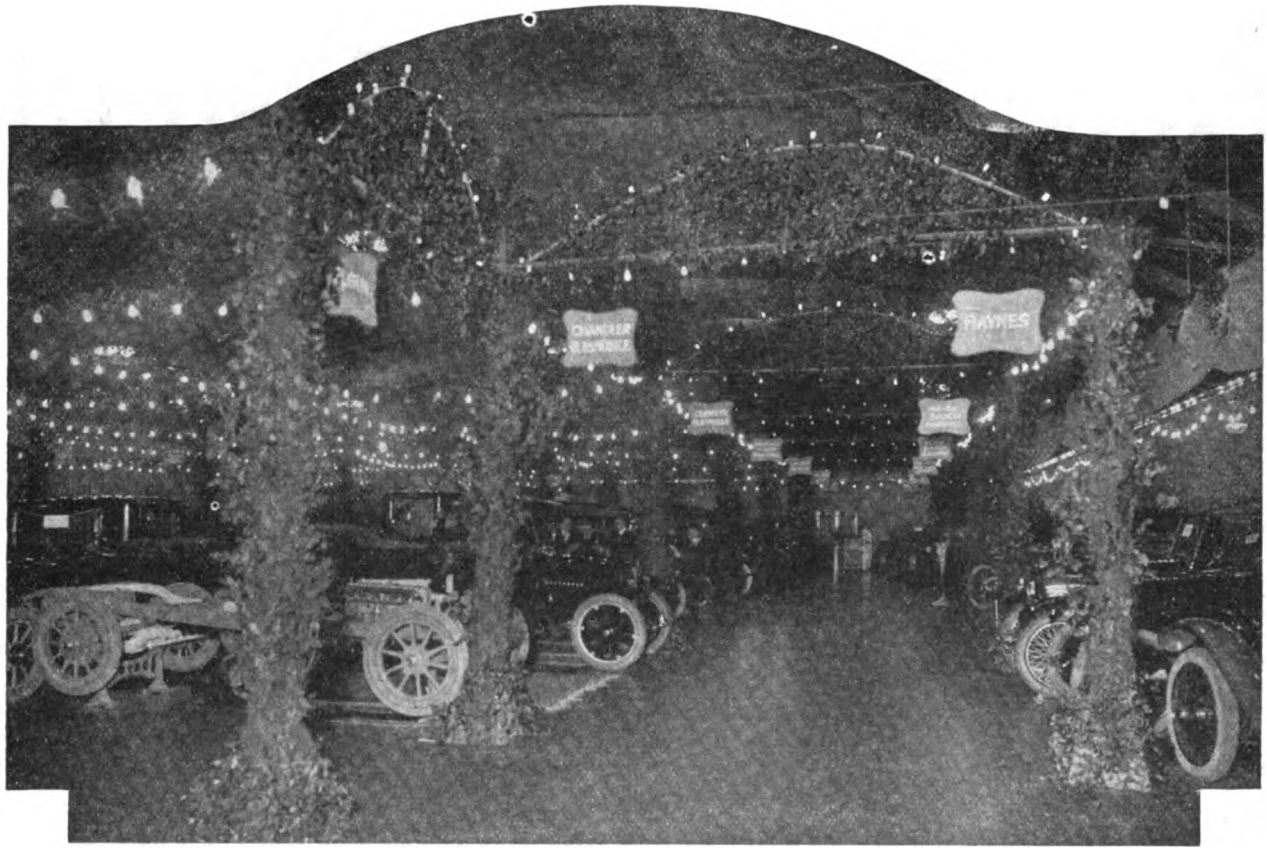
You will open in the back of your binder a sheet for John Jones which you will call commission accounts and on form 2 when you draw the weekly check for $15 you enter a credit under all cash paid and under the all other accounts column on the debit side you would charge this $15 to John Jones Commission account.

This item you will post at the end of the month to the debit side of the sheet in the rear of the binder using form 3 for that purpose. Now we arrive at the end of the month and we find that Mr. Jones' commission amounts to $80 and we make a journal entry on form 2 as follows.

Under the car sales expense column we charge $80 to an account we call sales commission and on the credit side of form 2 under all other accounts we credit an account which we call John Jones Commission account. This credit we transfer also to John Jones Commission sheet in the rear of the binder but instead of placing this on the charge side we place the $80 on the credit side.

Now if you will strike a balance on your John Jones Commission sheet you will notice that he has a credit balance of $20 and you want to settle this account so you draw your check again on form 2 placing the $20 under all cash paid column and under the all other accounts column you charge this same amount to John Jones commission account. Now post this $20 to John Jones Commission sheet and his commission account is balanced.

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Broad aisles and absolute cleanliness are two of the things that make the Syracuse show stand out among its fellows. This view shows only one aisle

IT'S CLEAN!

Syracuse Stages Spotless Show

The Syracuse dealers' association pays its show manager's expenses on a tour of the better shows. So HIS *show is a model of its kind. Read about it.*

SYRACUSE, N. Y., Feb. 24—Syracuse has a clean show. It is clean from cellar to garret and right out onto the sidewalk in front of the State Armory where it is held. And this is one big reason why it is attractive, pleasant to visit and pleasant to do business in; it follows that the dealers really are doing business. Larger crowds have attended this show than any previous show, total attendance for the week exceeding 35,000; last year 29,000 persons passed the gates.

It was Harry Gardner, manager of the show, who sent out the letter which was reproduced in a recent issue of Motor World urging that exhibitors endeavor to get some specially painted cars for display; that they use rugs and tables and lamps and flowers and really get some zip and spizz into the show.

It is no fault of Gardner's that every dealer did not follow his excellent suggestion; nor is it the fault of the exhibitors. Practically every one of them tried hard to get special cars, and a few of them succeeded. But the freight situation hindered most of them, and some of them had their own troubles getting even stock cars to fill their spaces. As it is, there is a fair sprinkling of special cars, and they go a long way to relieving the monotony of somber colored stock cars.

The Reo "Wind-Break"

Immediately a person enters the Armory he is confronted with a special car. In place of the usual "wind-break," Gardner has a white Reo car in a special frame which is really a great shadow box. The Reo Sales Co. erected the frame at a cost of about $150, and it is merely a light scantling frame covered with fireproof bunting and lined with black silesia. There are high power lights concealed in the frame, and the effect is excellent. In addition to advertising the Reo car, the frame is a very effective wind break, is something new in the way of show decoration and puts the show visitor in the proper frame of mind for the rest of the show.

Ideas From Other Shows

When Gardner first took hold of the Syracuse shows he did so with a flock of ideas and with a pretty thorough knowledge of where previous shows had fallen down. In consequence, he has reduced everything to a science, with the result that the exhibitors are happy, the public is happy and the show pays.

For one thing, Gardner each year visits a number of shows in other cities; the Syracuse Automobile Dealers' Association, which puts on the show, pays his expenses, and it is an excellent investment for him and for them. This year Gardner went to Pittsburgh, Rochester and Buffalo, and at every one of these shows he found a number of things that were not done in just the right way. The direct result is that they are done right in the Syracuse show.

Gardner learned, for example, to segregate exhibits. Trucks are together in

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one part of the building, pleasure cars are in another part, and the accessories are all in the basement, where there is also an overflow exhibition of cars.

Months before the show opens Gardner starts his work; among other things he writes all the advertising copy for the local papers. Then when show week comes he has not this to worry him. The papers have their copy and their schedule, and they simply insert the ads accordingly.

Also, months ahead of time, he sends out space applications which serve several purposes. One is reproduced herewith. In the first place, they lay down definite rules for exhibitors and no infraction is permitted.

For example, one rule states that no accessories can be exhibited in car spaces unless attached to cars in the manner intended by the manufacturer. This is to prevent professional jealousy on the part of accessory exhibitors.

Another rule gives every exhibitor two season passes for every space he occupies. This prevents disputes. The dealer can get more season passes upon payment of $2 each if he really wants them.

On the reverse of the application blank there is room for a list of the dealer's sub-dealers. Each dealer is supposed to fill this out. When Gardner gets these lists he goes through them and eliminates the duplications and makes a new numbered list.

To every name on the list he then sends a correspondingly numbered ticket which has a detachable stub. The dealer fills out the reverse side of this ticket, which gives his name, address, etc., and in exchange for it receives a button and a ticket. When he enters the show he gives up the ticket, which is circular and saw-toothed and so can be easily felt among other papers. Dealers are sold tickets for their own use at 25 cents. Regular admission to the show is 35 cents on all days except society day, when it is 50 cents. A charge of 10 cents admission to the balcony is an innovation and tends to keep out the riff-raff.

Absolute Cleanliness Insisted On

Gardner insists upon absolute cleanliness. He has a staff of janitors in khaki uniforms, who go over the show with a fine-tooth comb every morning; they start by sweeping the sidewalk. Exhibitors can spot the janitors easily, and any exhibitor can tell any janitor to "pick up those papers"; and the janitors do it. Consequently the show is spotlessly clean all the time. This fact is accentuated by the 14-foot aisles.

The no smoking rule is enforced rigidly. At both sides of the main entrance there are large urns, and two policemen make every smoker discard his smoke before he enters the show. There is no "pinching" snipes.

Gardner has put his doormen in brilliant red uniforms, and they bask in the light of high power tungsten lamps. There is no misunderstanding as to where tickets must be dropped.

The show on the whole is well arranged and beautifully decorated. All spaces are the same size, 10 x 18 ft., and no dealer can have more than four spaces. The best arranged exhibit from a merchandising point of view is that of Bull & Young, Franklin dealers. This dealer has three spaces and shows three cars, so that there is plenty of room around the cars. A table and a rug make the space attractive.

Five Cars in Space of Three

W. R. Shaw, Oldsmobile and Chandler dealer, has the space occupied last year by Bull & Young, and though he has five cars where last year there were three, the effect is not crowded because he has virtually made two exhibits of the space by placing one car so that it divides the space in two.

The show is essentially a retail proposition, and a considerable number of sales are closed on the floor. It is also a gathering place for dealers from the territory adjacent to Syracuse, and draws hundreds of dealers. Here are some of those who came:

Atkinson, John F.....Rome, N. Y.
Anderson, Samuel.....Oswego, N. Y.
Aird, C.....Mexico, N. Y.

Burr, Calvin .....Auburn, N. Y.
Blake, F. M.....Bowens Corners, N. Y
Bond, H. J.....Oswego, N. Y.
Brown, B. W.....De Ruyter, N. Y.
Brown, Geo. A.....South Otselic, N. Y.
Brennan, W. H.....Norwich, N. Y.
Bowes, F. M.....Jordan, N. Y.
Blake, F. M.....Fulton, N. Y.
Boyce, Bert .....Ovid, N. Y.
Boyce, A. H.....Seneca Falls, N. Y.
Briggs Bros. .....Homer, N. Y.
Bronner, N. B.....Little Falls, N. Y.
Bateman, N. C.....Lowville, N. Y.
Baldwin, L. H.....Leonardsville, N. Y.

Boomer, Geo. H.....Adams, N. Y.
Brownlow, John H.....Ogdensburg, N. Y.
Brown, L. E.....Watertown, N. Y.
Baldwin, L. H.....Leonardsville, N. Y.
Bailey, J. H., Garage Co.....Ithaca, N. Y.
B. & C. Auto Co.....St. Johnsville, N. Y.
Bemus, P. B.....Sandy Creek, N. Y.
Burroughs, E. J.....Otisco, N. Y.

Central Garage.....Utica, N. Y.
Clemmons, B. F.....Utica, N. Y.
Central Garage.....Massena, N. Y
Curtis, E. C.....Gouverneur, N. Y.
City Cycle & Auto Co.....Cortland, N. Y.
Cook's Auto & Supply Co..Cooperstown, N. Y.
Chalmers-Chenango Co.....Norwich, N. Y.
Carnes Motor Sales Corp.....Pulaski, N. Y.
Chamberlin, George.....Skaneateles, N. Y.
Curtis, W. S., Inc.....Auburn, N. Y.
Cayuga Garage.....Oswego, N. Y.
Coleman, B. L.....Geneva, N. Y.
Cole, Walter .....Ithaca, N. Y.
Cornell & Barber.....Canton, N. Y.
Chandler Sales Co.....Auburn, N. Y.
Coles Tool & Machine Co....Oneida, N. Y.
Cole, Truman .....Little Falls, N. Y.
Clark, M. J.....Hamilton, N. Y.

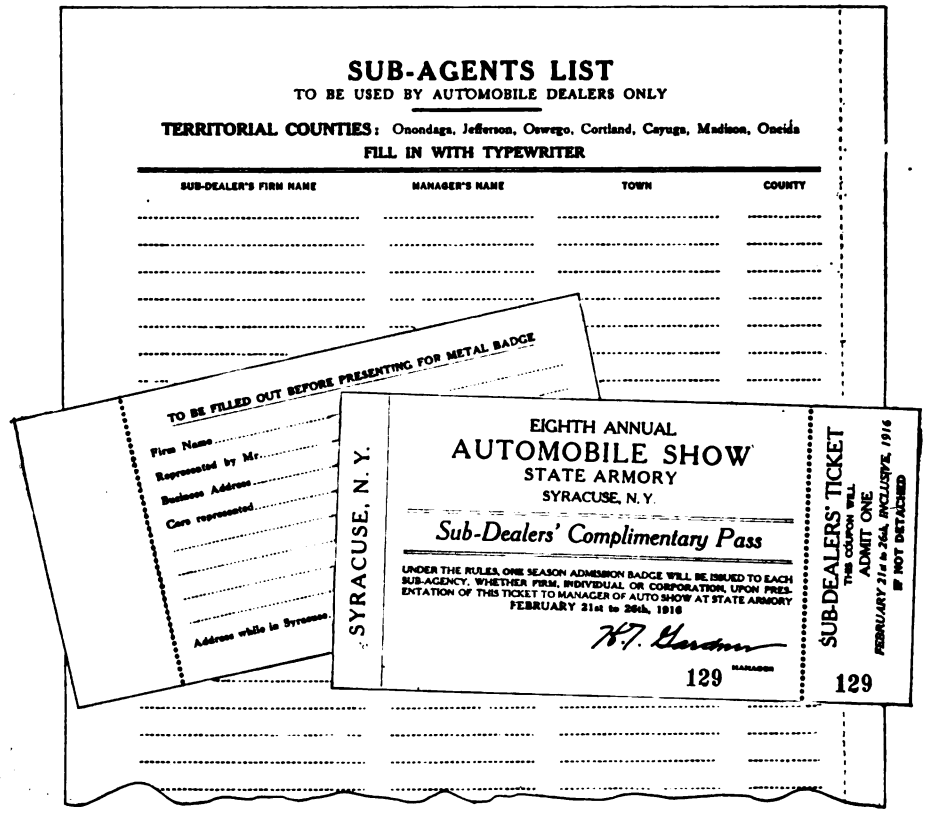
Doll & Wilcox.....Smyrna, N. Y.
Dimick, Fred .....Trumansburg, N. Y.
Davey, A. E. & Geo. H.....Cicero, N. Y
Dalton, J. F.....Apulia Sta., N. Y.
Dickinson & Garner.....Cortland, N. Y.
Dence, G. B.....Euclid, N. Y.
Duff, T. R.....Rome, N. Y.

Ellis, Edward M.....Minetto, N. Y.

Foster, Fred .....Moravia, N. Y.
Franklin, H. R.....Pulaski, N. Y.
Farr, Chas .....Canastota, N. Y.
Firth, Fred .....Auburn, N. Y.
Fowler, Geo. A.....Manlius, N. Y.
Franklin, H. R.....Pulaski, N. Y.

Gallup, Ira .....Lowville, N. Y.
Graham & Adsit.....Fayetteville, N. Y.
Gorgan, G. A.....Seneca Falls, N. Y.
Gay, Leon D.....Cortland, N. Y.
Green, F. G.....Moravia, N. Y.
Gibeau, C. B.....Mannsville, N. Y.
Genesee Motor Car Co.....Watertown, N. Y.
Gillette, Frank.....Marcellus, N. Y.
Genesee Motor Car Co.....Elmira, N. Y.

Huxford, C. H.....Skaneateles Falls, N. Y.
Hurd & Breen .....Chittenango, N. Y.
Howard Motor Car Co.....Watertown, N. Y.
Hayford & Brown .....Tully, N. Y.



Dealers must list their sub-dealers on the back of the space application. Then each is numbered and sent a correspondingly numbered admission ticket. The story explains how the plan is worked, and it works well

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Hewitt, H. A. & Co.....Hannibal, N. Y.
Howard, A. L.....Baldwinsville, N. Y.
House, S. D.....Camillus, N. Y.

Innann & Son, A. C.....Oswego, N. Y.

Jordan, W. E.....Mexico, N. Y.
James, B. N.....Watertown, N. Y.
Jaynes & Page.....Cicero, N. Y.
June Automobile Co.....Binghamton, N. Y.

Kellogg, C. M.....Ithaca, N. Y.
Kilby, H. A.....Lacona, N. Y.
Karpinski, H. J.....Oswego, N. Y.
Karlen, Samuel .....Boonville, N. Y.
Keller, Frank .....Durhamville, N. Y.
Kinnie & Ames.....Cortland, N. Y.

Linzy, F. C.....Auburn, N. Y.
Lester, Co. .....Fayetteville, N. Y.
Lintz, Clarence .....Central Square, N. Y.
Labreck, Joseph .....Auburn, N. Y.

Myer, Earl H.....Hayt Corners, N. Y.
Minor, F. B.....Richland, N. Y.
Macurey & Sproul.....Watkins, N. Y.
Munger, C. S.....Herkimer, N. Y.
McGinnis, John J.....Fulton, N. Y.

Norton, C. A.....Baldwinsville, N. Y.
Nightingale, John .....Marcellus, N. Y.
Nellis, W. D.....Watertown, N. Y.
Northrop, S. B.....Watertown, N. Y.
N. Y. Sales Co.....Binghamton, N. Y.
Norton, D. D.....Cazenovia, N. Y.
Newton Motor Car Co..Chittenango, N. Y.
Niles, Mr. .....Marathon, N. Y.

Oswego County Auto Co.....Oswego, N. Y.
Otis, John .....Oswego, N. Y.
Oneida Motor Car Co.....Oneida, N. Y.
Oneida Motor Car Co.....Oneida, N. Y.
O'Hara & Sons, M. J.....Camillus, N. Y.
Osborn, Fred .....Camden, N. Y.

Palmer, George B.....Fulton, N. Y.
Peck, Miles J.....Cortland, N. Y.
Pritchard & Son.....Ithaca, N. Y.
Paddock, W. O. .....Richland, N. Y.
People's Motor Sales Co..Skaneateles, N. Y.
Prior, E. A. .....New Haven, N. Y.
Pulaski Auto Supply Co.....Pulaski, N. Y.
Potter, R. G.....Oswego, N. Y.
Parish, Hiram .....Penn Yan, N. Y.
Pilot, James C.....Marcellus, N. Y.

Quackenbush, G. W.....Oxford, N. Y.

Robinson, L. F.....Trenton Falls, N. Y.
Rinehart, W. H.....Knoxboro, N. Y.
Romig, H. B.....Auburn, N. Y.
Reagan, Jno. C.....Tully, N. Y.

Shaver, Charles .....Cazenovia, N. Y.
Spencer Bros. .....Seneca Falls, N. Y.
Siver, M. R.....Oneida, N. Y.
Sparks & Son.....Oswego, N. Y.
Smith, Arthur J.....Auburn, N. Y.
Sylvester, Wm.....Fulton, N. Y.
Sprague, D. F.....Harrisville, N. Y.
Smith, W. H.....Weedsport, N. Y.
Smith & Nixen .....Homer, N. Y.
Sylvester, Wm. .....Fulton, N. Y.
Stott, Ed. J. & Jos.....Skaneateles, N. Y.
Springer, L. E.....Auburn, N. Y.
Shoemaker, Loren W.....Hamilton, N. Y.
Shelmidine & Lowry.....Lorraine, N. Y.
Stoddard, H. E.....New Woodstock, N. Y.
Smith, Charles .....Cortland, N. Y.
Spencer, Otto J.....Union Springs, N. Y.
Shaw, Fred P.....New Hope, N. Y.
Seaker-Graves Motor Co..Gouverneur, N. Y.
Stevens Hardware Co.....Oneonta, N. Y.
Sanford & Jenkins.....Margaretville, N. Y.
Smith Bros. .....Turin, N. Y.
Spooner & Campbell.....Gouverneur, N. Y.
Stokes, Walter .....Manlius, N. Y.
Seaver, F. A.....Potsdam, N. Y.
Smith, C. M.....Cortland, N. Y.
Shotwell, W. J.....Skaneateles, N. Y.

Thompson, H. D. & Co.....Malone, N. Y.
Tobin, Geo. L.....Cuyler, N. Y.
Trimble, Glenn .....Palermo, N. Y.
Totten, Ray J.....Manlius, N. Y.

Van Wageen, Inc., F. D.....Fulton, N. Y.

Webster, S. L.....Tully, N. Y.
Watertown Motor Sales Co..Watertown, N. Y.
Whitney, A. S. & Son.....Gouverneur, N. Y.
Wilna Machine Co.....Carthage, N. Y.
Wicks, E. H.....Antwerp, N. Y.
Ward & Douglas.....Auburn, N. Y.
Woodruff, L. A.....Rome, N. Y.
Williams, E. E.....Lowville, N. Y.

Prosperity Marks Syracuse Area

SYRACUSE. Feb. 23—With industries and agriculture in the Syracuse motor car territory prosperity it looks like a good year for the Salt City dealers and distributers. Little needs to be said about the price of food products, of which the section about this city raises a considerable quantity.

Potatoes have reached the point where they are more of a luxury than are motor cars, and those farmers who did not sell out below $2 are getting the record figure for their produce. Grains, too, are high, and hay and the other flour and feed products are fetching good prices.

Industry in the cities is an important factory. Syracuse boasts of several car factories, chief among them that of the H. H. Franklin Mfg. Co., which is having the biggest year in its history. Not only does this produce cars, but it makes buyers, for the wages paid mechanics in this city are now higher than ever before in the history of the town.

The Brown-Lipe and Brown-Lipe-Chapin plants are located here, turning out thousands of gears for the motor car industry, and the city is especially healthy in that it contains scores of large and small industries, all of which are thriving.

The Syracuse territory is larger than that served by some of the larger cities of the State. Because of the restricted geographical area Rochester and Buffalo are somewhat hemmed in, but Syracuse runs away down to the north as far as Ogdensburg and to the south to the Pennsylvania line in some cases. Some agencies include Utica on the east and all of them go about half way to Rochester on the west.

Pennsylvania Farmers Buying Cars

YORK, PA., Feb. 24—The growing use of the motor car among Pennsylvania farmers is demonstrated by the fact that one out of every six farmers in the state owns a car and one out of every 100 farmers owns a truck.

According to figures gathered by the statistical bureau of the state department of agriculture the number of cars now owned by farmers is 33,268. One year ago there was an automobile on every tenth farm and the total number was estimated at 22,608, but during 1916 there were purchased by the farmers 10,660 cars, making a total of 33,268, showing an increase of almost 50 per cent over the previous year. In 1915 there were 15,000 cars on the farms of the state and this number has been more than doubled in 2 years.

It is estimated that there are about 2150 trucks of various weights in use by the farmers of the state.

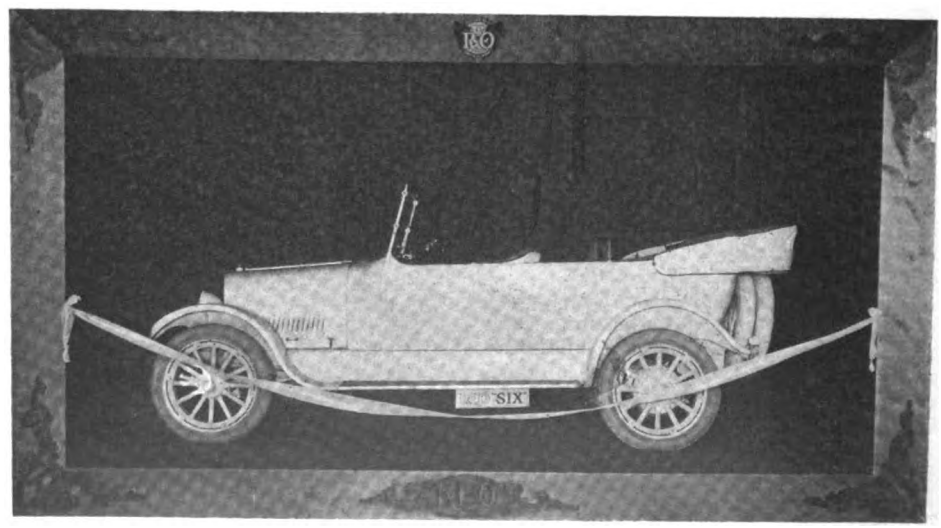
In 12 counties 20 per cent or more of the farmers own motor cars and in only 10 counties is there less than one machine for every tenth farmer.

Seven counties show more than 1000 farmers owning cars with Lancaster county well in the lead with a total of 2600 owned by its 10,000 farmers or one car on every fourth farm. Philadelphia county shows one car on every third farm, but the total is only 247 cars as there are less than 800 farmers in the county. Chester county shows 24 per cent of the farmers or 1350 owning cars, while Bucks is third with 1324 and Allegheny fourth with 1195. Washington county farmers have 1135, Berks county 1112 and York county shows 1099.

Other counties in which 500 or more farmers own cars are: Bradford, 932; Erie, 881; Mercer, 866; Montgomery, 929; Somerset, 825; Westmoreland, 826; Butler, 710; Crawford, 782; Susquehanna, 763; Franklin, 637; Lehigh, 659; Luzerne, 643; Northampton, 651; Tioga, 621; Bedford, 507; Lebanon, 505; Schuylkill, 540; Wayne, 551.

St. Louis Draws 70,000

ST. LOUIS, Feb. 26—The turnstile count at the automobile show last week and the dealers entrance showed an attendance of more than 70,000 persons. Employees were admitted through another door and are not included in this count. The registration of dealers shows that 6500 came here from 12 states—Missouri, Kansas, Oklahoma, Illinois, Indiana, Kentucky, Tennessee, Texas, Arkansas, Louisiana, Mississippi and Alabama. General Manager Robert E. Lee said that 8000 persons were in the building when the curtain was rung down.



Here is the wind-break at the Syracuse show—a white Reo car in a mammoth shadow box frame

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Dealers of Six Cities Combine in Single Show

South Bethlehem for Week Is Made Motor Center of Lehigh Valley—Territory Wealthy

SOUTH BETHLEHEM, PA., Feb. 24—Six cities were represented in the most successful show ever held in this city. The Lehigh Valley Automobile Show was staged last week in the Collisseum and upward of 35,000 visitors attended.

Four of the dealers came from Philadelphia, while the rest came from points throughout the valley. Allentown, the largest city in the group, was represented by fifteen dealers; Bethlehem by five; Easton, one; Seiderville, one, while this city had three showing the wide extent of territory taken in.

The Lehigh valley, termed commonly the Switzerland of America, which includes Northampton and Lehigh counties, is the most industrious section in the state outside of Philadelphia and Pittsburgh, and at present is in the midst of an industrial activity heretofore unknown.

War Orders Boost Production

In 1916, due largely to war orders, the value of production of all industries in this part was $274,000,000, with the balance in favor of Northampton. The latter is due largely to the Bethlehem Steel Co., the largest employer of labor in the valley. In Lehigh county, silk mills hold sway and are the center of activity there. One fourth of the workers in the valley are employed by the Bethlehem steel works.

The total population of the valley is approximately 255,000. As the number of persons engaged in manufacturing is about 41,000 it will be seen that merchants and farmers constitute a large part of the population.

Agriculture plays a comparatively unimportant part in the wealth of this district, although the value of farms and crops is rated high. In the county of which South Bethlehem is the county seat the rye crop leads with a production of 250,000 bushels, being the largest in the state. The value of all crops is $3,000,000 on an arca of 192,651 acres. The value of farm property is $18,314,-227, and farmers generally are rated as a prosperous class. As the number of farms is 3,565, the average value is therefore $5,000.

Labor Scarce; Wages High

The wealth of the Lehigh Valley during the past year has placed commercial interests on a firm footing. The steel industry has contributed toward it in a way never before known by the inhabitants. The tremendous activity of Bethlehem Steel with the consequent increase in the number of wage earners has caused money to "flow like water," so to speak. There is an under supply of available labor and the wages paid, therefore, are comparatively high.

There is an exceptional opportunity for development here from the standpoint of the automobile industry. The opportunity lies in the big cities represented by Easton, Allentown, Bethlehem and South Bethlehem. People from all over the surrounding country flock to these cities for all their purchases.

A sort of rivalry exists between them which has become so keen during the last five years that the amount of capital invested in this city alone increased 67 per cent during that period and is now $70,000,000. The value of products increased 52 per cent and the amount of wages and salaries 48 per cent.

New Dealers Wanted

The opportunity lies in the establishment of new agencies which is the crying need of all these cities.

The need of dealers is also demonstrated by the way in which buyers took advantage of the show. They flocked in from every point in the valley, from small towns and cities and from villages. Judged from the sales made in the opening days of the show the final count will total up to a very profitable figure.

There appears to be no marked preference among buyers for any particular class of automobile. The demand is just as pronounced for cars in the Ford class as it is for cars in the Packard class. Among the sales first reported were the following makes: Marmon, Haynes, Studebaker, Cole, Overland and Buick. There were 85 cars on the floor representing 39 different makes. In addition to these there were a number of accessory exhibitors a few of whom were Philadelphia firms.

Engineering Publishers Draw Together

NEW YORK, Feb. 27—Two of New York's large technical and engineering publishing companies have merged under the name of the McGraw-Hill Publishing Co. Under this title are included, what was the McGraw Publishing Co., and the Hill Publishing Co. The McGraw Company published Electrical World, Engineering Record, Electric Railway Journal, Electrical Merchandising, Metallurgical & Chemical Engineering, and Contractor. The Hill company published American Machinist, Power, Engineering News, Engineering & Mining World, and Coal Age. J. H. McGraw is the president of the new organization, and A. J. Baldwin of the Hill company first vice-president. E. H. Mehren of the McGraw organization is general manager.

Belmont Ready in 60 Days

TOLEDO, OHIO, Feb. 26—The Belmont Motor Car Co. expects to have its car in production in 60 days. The two final experimental jobs are running. The price has not yet been determined but it is expected that it will sell for $1,750. It has a six-cylinder Buda engine, 3½ x 5¼, multiple-disk clutch, unit power-plant, Hotchkiss drive, three-quarter floating axle, 33 x 4 cord tires, wire wheels, and a 122-in. wheelbase.

Small Car Market Good in "Essen of America"

Bridgeport's Munitions Plants Provide the Money and the Need for Transportation

BRIDGEPORT, CONN., Feb. 24—Bridgeport, the "Essen of America," tonight closed its fifth annual show at the State Armory, and the exhibit will go down in history as the most successful.

Dealers are overjoyed by prospects for the coming season, due to the great era of prosperity in Bridgeport. With munition makers earning as high as $16 a day there is plenty of money for purchasing machines.

The demand for small cars is unusually great. This, dealers believe, is due to the fact that practically every great munitions plant is located on the outskirts of the city. The trolley company, unable to keep up with the city's enormous growth, has been unable to provide adequate service—and the small car solves the transportation problem for the workman. Due to inadequate housing conditions, many munitions makers have been forced to procure living quarters in the suburbs. This also increases the demand for small cars.

In the last 2 years, the population of Bridgeport has increased 50 per cent, due principally to the erection of the giant Remington Arms plant which employs about 15,000 men. All are earning high wages, and despite the high cost of living, can save enough to purchase medium-priced cars.

Dealers also claim that farmers in the surburban sections are rapidly eliminating the horse for farmwork. With the high price of grain, the farm horse is an expensive proposition and many farmers have turned to the light tractors and trucks in order that the problem may be solved.

Due to New England's "fifty-seven varieties of weather" there is a growing demand for enclosed cars. Several enclosed cars exhibited at the show attracted much attention and dealers report abundant orders.

Pendleton Show Draws Well

PENDLETON, ORE., Feb. 17—Pendleton's first annual show attracted many out-of-town visitors from all over the Northwest. Between 35 and 40 dealers exhibited. Located in the center of a large cattle and farming country money is plentiful and dealers generally were well-pleased with the results of their efforts.

Detroit Branch For Sexton

CHICAGO, Feb. 24—The Sexton Castor Motor Oil Co. will establish a factory branch in Detroit. It will be in charge of H. T. Ames and will serve the northern and central parts of Michigan.

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All Attendance Marks Passed at Albany Show

Twenty-five Thousand People Look and Many Buy—Country Population Well Off Financially

ALBANY, Feb. 24—Neither the high cost of living nor the fact that this country might be plunged into war with a foreign nation in the near future had a deterrent effect on the seventh annual motor car show of the Albany Automobile Dealers' Association, which closed its doors to-night at the State Armory. The show started a week ago. The attendance has broken all previous records. It was estimated that not less than 25,000 persons viewed the 50 cars that were on exhibition.

Albanians with money to buy motor cars visited the show and bought cars. Many of the dealers report not only good sales, but many excellent prospects. It is conservatively estimated that not less than 500 cars have been sold as a direct result of the show.

This year it was decided to cut out all the special nights, such as society night and the like. This was because on society nights there were many lookers but few buyers. So this year, when it was known that a holiday would come in the middle of the show, it was determined to cut out the feature that has not been entirely a success of late years.

The sales began on the opening night. One of the first reported was that of a Hudson Super-Six, the order being booked by one of the staff of President E. Vincent Stratton, of the association. Every afternoon and evening additional sales were reported. The accessories end of the show was not slighted in any particular, and while many sales were made then and there yet many orders were booked for future deliveries of various articles. The local manufacturers, all of whom had good displays at the show, were well pleased with the result of the week's show.

Albany, located in the center of the State, on the main line of the New York Central, is one of the largest distributing points for motor cars in the State outside of New York and Buffalo. The local agencies cover a wide range of territory, mostly of a farming character, and the residents of these sections, with money to spend for motor cars, attended the show in large numbers.

This year the farmers are buying trucks for use in the spring, and the sale of trucks was very large. Not only did the farmers buy trucks and pleasure cars, but many business firms in Albany also bought to take care of their increasing business.

For the next six weeks Albany dealers will be kept busy caring for the orders received at the show. In several instances cars that were on view will not be returned to the showrooms but will be sent direct to the purchaser.

The Maxwell people had a separate show of their own at their North Pearl Street showrooms. They report the sale of many new cars and some excellent prospects.

In addition to the show several of the dealers conducted "used car sales," and were not stingy in their use of printer's ink to let the fact be known. The Packard agency and the Cadillac agency had two very successful sales of used cars, and they report that many cars were disposed of.

One of the popular cars on view was the "club roadster" model of various makes. These cars, seating four or five persons, are bound to be very popular in and about Albany during the coming spring and summer, judging from the number that were sold. The sedan type was also very popular.

Holmes Incorporates His Company

CANTON, OHIO, Feb. 22—Arthur Holmes, formerly vice-president and chief engineer of the Franklin Motor Car Co., Charles Rockwell, former sales manager of the Franklin company, with George Belden, and C. G. Herbruck, are the incorporators of the Holmes Automobile Co., with a $2,500,000 capitalization. As was stated in a recent issue of MOTOR WORLD, the company will make air-cooled engine cars and will erect a plant in this city. The incorporators will complete the organization of the company and the sale of stock, $800,000 of which has already been subscribed for. The capitalization will be divided into $1,000,000 common and the rest preferred.

Menominee Truck To Green Bay?

MILWAUKEE, WIS., Feb. 26—The Oneida Motor Truck Co., of Green Bay, Wis., capital stock $300,000, has filed articles of incorporation, and while the men behind the new concern are not ready to announce their plans, it is reported that the company was formed for the express purpose of bringing to Green Bay the plant and headquarters of the Menominee Motor Truck Co., now located at Menominee, Mich., and formerly known as the D. F. Poyer Co. It is known that Green Bay capitalists some time ago were given assurance by the Menominee company that if sufficient capital could be induced to participate, the removal would follow. The incorporators of the Oneida company are all representative capitalists of Green Bay, among them being Mitchell Joannes, J. C. Fogarty, Samuel H. Cady, F. E. Burrall, J. H. Taylor, Joseph P. Nugent, W. H. St. John, E. H. Manger and others.

Pierce-Arrow Earns $4,000,000

BUFFALO, Feb. 26—The Pierce-Arrow Motor Car Corp. in 1916 earned over $4,000,000 after all depreciation charges. This is equivalent to $12.80 a share on the 250,000 shares of common stock outstanding, no par value, after allowing for 8 per cent dividend requirements on the $10,000,000 preferred stock outstanding. Profits of $4,000,000 in 1916 compare with $4,301,000 in 1915.

Milwaukee Trade Drops Plan of Used Car Mart

Co-operative Idea Temporarily Set Aside While Used Car Show Plan Is Investigated

MILWAUKEE, Feb. 26—The effort of members of the Milwaukee Automobile Dealers, Inc., to solve the problem of the used car by organizing a co-operative clearing house association in the form of a $100,000 corporation, has been dropped for the present at least because of the disinclination of more than one-half of the potential members to support the plan by the actual subscription to the stock issue. A Used Car Show probably will be the result of the movement put under way several months ago.

While details still are indefinite, the M. A. D. has appointed a special committee to investigate into the feasibility of conducting an exposition of this character early in the spring, with the object of cleaning up the large stocks of used cars taken as part payment on new cars during the late summer, fall and winter months. This committee consists of Frank J. Edwards, Kissel and Dodge, chairman; Jesse A. Smith, Hudson distributer, and George W. Browne, Overland and Willys-Knight.

The M. A. D. has been working quietly since last fall on a number of plans for taking care of the used car problem of its members. The investigations of the situation in Milwaukee and other cities resulted in the final consideration of the plan to organize a separate corporation, with a capital stock of $100,000, which was to build a warehouse, service shop and display building exclusively for used cars, and which was to handle all of the used cars received by the constituent members.

The capital stock was to have been distributed in such a manner that the organization would be truly co-operative. The plan appeared to meet with universal approval until the time came for affixing signatures to stock subscriptions. Then it was found that only one-half of the required $100,000 could be raised. It was deemed too late in the season to continue solicitation, and at a special meeting of the association on Monday evening it was decided to drop the matter for the time being. There is every reason to believe that the project will be revived early next fall.

If a used car show is held, the Auditorium probably will be leased for several days some time in the early part of April, and all of the used cars held by the various members of the association placed on exhibition for sale. The show will be timed to come at the actual beginning of the touring season.

Although little publicity had been given to the M. A. D.'s plan of organizing a used car clearing house asso-

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ciation, the investigations of the committee of dealers aroused great interest in all parts of the country. The Milwaukee idea was based on the assumption that the used car business is a business in itself, and one that could be handled with profit under the right conditions. The proposed association was to have been the agent of all members, none of whom would have been required to touch a used car after the plan was in operation.

Prospective customers having a used car to offer for part payment would have been referred to the clearing house, which would have appraised its value and paid a schedule price in the form of a certificate. This paper would have been honored at face value by any dealer, and the dealer would have been able to realize 100 cents on the dollar from the clearing house.

Wisconsin Motor Triples Capital

MILWAUKEE, Feb. 27—The Wisconsin Motor Mfg. Co. has increased its capital stock from $350,000 to $1,000,000 and started work on plans for the enlargement of its works at Forty-seventh Avenue and Burnham Street, which will make possible an increase of from 50 to 75 per cent in its output. This announcement was made today by Charles H. John, president and general manager. The increased capital is the result of the declaration of a stock dividend of 100 per cent, in addition to the regular cash dividends, at the annual meeting of the company. The issue of $1,000,000 is divided between $700,000 common and $300,000 in 7 per cent preferred stock. The present stockholders have subscribed for practically the entire issue, and only a small part is available to outside capital.

Automobile Editor Boston Journal Dies

BOSTON, Feb. 26—Frank D. Sullivan, automobile editor of the Boston Journal, died here Saturday of heart failure. He had been ill since the New York show. The funeral took place this morning. He was a brother of James T. Sullivan, automobile editor of the Boston Globe, and Motor World Boston editorial representative.

Complete Harroun Production Personnel

DETROIT, Feb. 24—The Harroun Motors Corp. has completed its production department and has appointed B. L. Whitted superintendent of the operation; C. E. Hoyt, superintendent of machining; N. W. Eagles, superintendent of the body department; E. J. Menke, superintendent of assembly; C. F. Judisch, superintendent of inspection; C. F. de Age, chief tool designer; N. A. Nelson, foreman of the tool room; J. F. Collins, factory office manager. Many of these men were formerly associated with H. O. Bernhardt, factory manager when he was factory manager for the Pierce-Arrow Company.

Farmer Is Big Factor in Bloomington's Show

All Food Products Are High and Ruralites Are Better Off Than for Years Past

BLOOMINGTON, ILL., Feb. 26—Larger and better than ever, the sixth annual show in Bloomington, Feb. 21 to 24, was featured by the interest it held for the farmer. While the average urban resident is worrying over the price of potatoes at $4 per bushel, against 75 cents per bushel a year ago, and with a proportionate advance in many other varieties of foodstuffs, the farmer is not concerned.

With his cellar full of vegetables, and his meat supply provided for by the occasional butchering of a hog or a chicken, the farmer has only to exchange his butter at 35 cents per pound and his eggs at 45 cents per dozen, for sugar and other groceries that he may need to help out his table menu, while he hauls a few wagon loads of corn, oats or wheat or a carload of cattle or hogs, to the market and puts away a larger sum to his credit in the bank than ever before in the history of the nation.

Mortgages are being squared, the interest burden, formerly so tormenting, is being cast aside and the opulent balance is being devoted to tractors and pleasure cars.

Illinois dealers have been active in the quest of the farmer's money, and they are getting it in satisfying quantities. In the case of the Bloomington dealers, attractively worded letters were sent to every farmer believed to be a prospect, and he was urged to attend the show and see what was offered. In many cases, a complimentary ticket was sent.

This business was not restricted to McLean County. Five other counties, contiguous to McLean, were combed for prospects and the result was gratifying.

The Bloomington show drew 10,000 persons, as against 12,000 at Peoria. The population of Peoria is twice that of Bloomington and the difference is thus naturally explained. There were 75 cars upon exhibition at the Bloomington show, twenty-two dealers making entries. In addition, there were a number of accessory and oil exhibits.

Guaranty Securities Re-elects Officers

NEW YORK, Feb. 26—At the annual meeting of the Guaranty Securities Corp. the following officers and directors were elected: President, George C. Van Tuyl, Jr.; second vice-president and treasurer, E. S. Maddock; secretary, J. Alexander; assistant secretary and assistant treasurer, F. A. Franklin; assistant treasurer, W. J. Bold. Directors: J. D. Dort, Dort Motor Car Co., Flint; Paul Fitzpatrick, assistant general manager of the corporation, New York; Robert Gray, Gray-Dort Motors, Ltd., Chatham, Ont.; C. P. Howland, Murray, Prentice & Howland; New York; R. D. McLennan, Marsh & McLennan, New York; T. G. Meacham, New Process Gear Corp., Syracuse; Stanley Roberts, Roberts-Toledo Auto Co., Toledo; E. F. Rorebeck, Metropolitan Trust Company, New York; Alfred P. Sloan, Jr., United Motors Corp., Detroit; John N. Willys, Willys-Overland Co., Toledo, and Messrs. Van Tuyl, Alexander and Maddock.

Herschell-Spillman Officers Re-elected

NORTH TONAWANDA, N. Y., Feb. 26—All the officers of the Herschell-Spillman Co. were re-elected at the annual stockholders' meeting Feb. 20, as follows: President, T. J. Wilson; vice-president and general manager, Guy White; secretary and treasurer, Edward O. Spillman; assistant secretary, A. M. Hathaway. A 2 per cent quarterly cash dividend, payable March 30, was declared.

Standard Parts Buys Bock Bearing

CLEVELAND, OHIO, Feb. 24—The Standard Parts Corp., the consolidation of the Perfection Spring Co. and the Standard Welding Co., of which Christian Girl is president, has purchased the Bock Bearing Co. of Toledo. The purchase involves $2,000,000 of which payment was made by part cash and the balance by stock of the Standard Parts Corp. The Bock plant will remain in Toledo and W. E. Bock will remain with the company.

Allen Adding to Plant

FINDLAY, OHIO, Feb. 26—Plans already agreed upon will give the Allen Motor plant 160,000 extra feet of floor-space in its factory at Fostoria, Ohio. The work of building the new additions will begin at once. The Dale Body Co., which furnishes Allen bodies, will build a one story 100 x 400 ft. plant. The main Allen building will be 100 x 400 ft., one story.

R. E. Olds Organizes Tractor Company

TAMPA, FLA., Feb. 24—R. E. Olds, president of the Reo Motor Co., Lansing, Mich., will organize a $1,000,000 corporation to manufacture farm tractors on a site between Tampa and Oldsmar, the new city which Olds is creating at the head of Tampa Bay. The plant will employ 500 men at the start and will build for southern trade in particular.

Bradford and Ackerman Join Hands

NEW YORK, Feb. 24—The Bradford-Ackerman Corp. has been formed by A. H. Ackerman, formerly vice-president and general manager of the U. S. Light and Heat Corp., and C. C. Bradford, formerly sales manager of the same company. The new company has established offices in the Forty-second Street Building, and will trade as a manufacturers' representative.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

A. C. Rice, plant sales manager of the Eclipse Machine Co., Elmira, has resigned and will become general sales manager of the Cycle Motor Corp., Rochester.

Howard W. Fenton, formerly connected with the Remy Electric Co., Anderson, Ind., and the Nordyke & Marmon Co., Indianapolis, in the sales and advertising departments, has been appointed advertising manager of the Empire Automobile Co., Indianapolis.

Dick Jemison, formerly sporting editor of The Constitution, Atlanta, and Motor World correspondent in that section, has resigned to enter the automobile business as a salesman and publicity manager for Poole & McCullough, who handle the Dort, Winton Six and Locomobile in Atlanta, Ga.

W. H. Brown, who was at one time a vice-president of the Willys-Overland Co., has been appointed director of sales of the Elgin Motor Car Corp., Chicago.

Scott F. Hunt, an engineer with the Zenith Carburetor Co., has resigned to join the organization of the Stromberg Motor Devices Co., Chicago.

Tom Jones has resigned his position as advertising manager of the Empire Automobile Co. and sailed for Europe to join a large automobile export company.

F. B. Drouillard has been appointed as superintendent of the new Maxwell plant in St. Louis.

O. F. Berkey, formerly with the Emerson-Brantingham Co., has become affiliated with the Oakland Motor Co., Chicago.

George M. Graham has been made assistant commercial manager of the Pierce-Arrow Motor Car Co. of Buffalo. He was formerly connected with the Willys-Overland Co.

F. Y. Horn has been appointed district manager of the Amazon Rubber Co., Akron. His headquarters will be in Chicago.

George Starke has resigned from the Maxwell Motor Co. as director of publicity and has joined the Campbell-Ewald Co. in a like capacity.

H. T. Cope, former secretary and treasurer of the Trio Mfg. Co., Detroit, has joined the Bantam Ball Anti-Friction Co., Bantam, Conn., as mechanic and sales engineer. Cope was with the Trio Co. until that concern was sold to the National Machine Products Co.

William B. Newlin, who has been associated for many years with the Pierce-Arrow Motor Car Co., Buffalo, is leaving that concern March 1. Newlin is entering Gray & Reardon as vice-president and sales manager, a corporation having been formed to handle all of Texas and the greater part of Oklahoma with the title Gray, Reardon, Newlin Co., with headquarters at Dallas and branches at all important points in two states.

C. Carter, formerly traveling representative in England for the Haynes Automobile Co., has joined the sale force of the Regal Motor Car Co. as a district manager. **W. H. Martleman,** formerly Regal distributer at Philadelphia, has rejoined the Regal Co. as the district manager at Philadelphia.

B. W. Kriedler has been appointed chief engineer, and **C. G. Spice,** experimental engineer of the Detroit Lubricator Co.

Paul Arthur has joined the Simms Magneto in the position of mechanical engineer.

G. T. Brackenridge, who has been with the General Motors Co., has resigned and accepted a position with the American Forging & Socket Co. at Pontiac.

Charles E. Fay, manager of the New England Branch of the Ford Motor Co., Boston, has resigned after 11 years' continuous connection with the Ford company. He has not made public his plans for the future.

Linerd Enters Globe Tire

NEW YORK, Feb. 26—The Globe Tire Mfg. Co. has recently made certain financial alterations in its policy and shortly will enter the tire industry in an aggressive manner. Present production facilities are 1000 tires a day, all of these being hand made and guaranteed for 6000 miles. The plant is located at Trenton, N. J., and the company has acquired 12 acres of land adjoining the factory for expansion. Joseph B. Linerd has been appointed general manager and a member of the board of directors, and will inaugurate an intensive sales campaign from executive offices at 1853 Broadway, New York. Linerd was previously with the Goodyear and Ajax companies.

Budd Wheels Going Out

PHILADELPHIA, Feb. 24—The Budd Wheel Corp., formed several months ago to manufacture steel and wire wheels, is in full sway and is shipping wheels as fast as produced. W. B. Read, secretary of the company, states that orders on hand will keep the plant running to capacity for the next 6 months or more. Present quarters are inadequate.

Motor Car Security Quotations

	Bid	Asked
*Ajax Rubber Co.	69	72
*J. I. Case T. M. Co. pfd.	82	85
Chalmers Motor Co. com.	25	30
Chalmers Motor Co. pfd.	..	..
*Chandler Motor Car Co.	98	99
Chevrolet Motor Co.	110	115
Fisher Body Corp. com.	35	40
Fisher Body Corp. pfd.	90	95
Fisk Rubber Co. com.	75	85
Fisk Rubber Co. 1st pfd.	101	105
Fisk Rubber Co. 2d pfd.	95	102
Firestone Tire & Rubber Co. com.	144½	147½
Firestone Tire & Rubber Co. pfd.	107	109
*General Motors Co. com.	114	114⅛
*General Motors Co. pfd.	88½	89½
*B. F. Goodrich Co. com.	55½	56½
*B. F. Goodrich Co. pfd.	105	110
Goodyear Tire & Rubber Co. com.	211½	215½
Goodyear Tire & Rubber Co. pfd.	106½	108¼
Grant Motor Car Corp.	5	7
Hupp Motor Car Corp. com.	3½	4½
Hupp Motor Car Corp. pfd.	88	95
International Motor Co. com.	15	19
International Motor Co. 1st pfd.	..	70
International Motor Co. 2d pfd.	..	30
*Kelly-Springfield Tire Co. com.	53	54
*Kelly-Springfield Tire Co. 1st pfd	90	93
*Lee Rubber & Tire Corp.	21	22
*Maxwell Motor Co., Inc., com.	54¾	55½
*Maxwell Motor Co., Inc., 1st pfd.	68¼	69¼
*Maxwell Motor Co., Inc., 2d pfd.	34¼	35
Miller Rubber Co. com.	253	257
Miller Rubber Co. pfd.	105	106¾
Packard Motor Car Co. com.	150	160
Packard Motor Car Co. pfd.	..	102
Paige-Detroit Motor Car Co.	38½	39¼
Peerless Truck & Motor Corp.	15	18
Portage Rubber Co. com.	164	168½
Portage Rubber Co. pfd.	..	..
Regal Motor Car Co. pfd.	27	33
†Reo Motor Car Co.	36	37
*Saxon Motor Car Corp.	52	56
Springfield Body Corp. com.	70	80
Springfield Body Corp. pfd.	110	120
Standard Motor Construction Co.	6½	7½
*Stewart-Warner Speed Corp.	86¼	87¼
*Studebaker Corp. com.	101¼	101⅜
*Studebaker Corp. pfd.	102½	109
Swinehart Tire & Rubber Co.	79¼	85½
United Motors Corp.	41¼	41⅜
*U. S. Rubber Co. com.	53½	54½
*U. S. Rubber Co. pfd.	108	109
*White Motor Co.	49	50
*Willys-Overland Co. com.	33¼	34
*Willys-Overland Co. pfd.	97	99

*At close Feb. 24, 1917. Listed New York Stock Exchange.
†Par value $10; others $100.

Emerson Begins Delivery of Cars; Has Shipped 69

Price with Equipment Has Been Made $545—Plans to Turn Out 5000 by Next Fall

KINGSTON, N. Y., Feb. 24—At the plant of the Emerson Motors Co., Inc., delivery of Emerson cars started the last week in January and sixty-nine have been delivered to date. These cars have gone into twenty-one states and carload shipments have been made to such states as New York, Pennsylvania, Texas, North Carolina, and South Carolina. There were approximately eighty Emerson cars in different stages of completion on the assembly floor of the factory today. Of the total of 100 employees, eighty-five are engaged in the factory.

The price of the Emerson has been increased from $395 without equipment, to $545 with equipment. This equipment includes: electric starting and lighting, speedometer, demountable rims, top, windshield, tire carrier, and 30 x 3½ in. tires all around.

A look through the orders of the purchasing department showed today that orders with specifications have been placed for parts as follows: wheels, 5000 sets; front and rear axles, 5000 sets; tire pumps, 10,000; gearsets, 1000; carbureters, 5000; steering gears, 1000; radiators, 500; demountable rims, 5000 sets, and there were other ordered specifications showing the extent to which the company is proceeding in its manufacturing problem.

At the factory, work of getting all of the departments installed is progressing. The tool department is approximately half filled with new machinery and the purchasing department showed orders for additional machinery for it. The engineering department is going ahead with its own plans. Negotiations are under way with regard to purchasing additional ground adjoining the present factory.

NEW YORK, Feb. 27—The Emerson Motors Co., Kingston, N. Y., will turn out 5000 cars by fall. J. W. Wellington of Sandusky, Ohio, has become superintendent of production at the Emerson plant. He was formerly the owner of the Mathews Engineering Co., Sandusky, and is interested in several automobile companies. J. T. Beadle has been appointed purchasing agent. Mr. Beadle was formerly connected with a Jackson, Mich., company. He still retains his interests in that company.

Leaf Spring Oiler Patent

CLEVELAND, Feb. 26—Patent No. 1,215,904, bearing date of Feb. 13, has been issued to William H. Brown, of the Brown Spring Oiler Co. This covers a device carrying a felt wick, or reservoir, for oil, the whole to be clamped at the side of leaf springs to lubricate them constantly.

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Freight Car Situation Is Rapidly Easing Up

Prompt Return of Cars is Helping—Few Manufacturers Delivering Cars Under Own Power

DETROIT, Feb. 26—The congestion of freight cars is somewhat relieved as compared with conditions a week ago. Some shippers attribute this to the milder weather, others to the new order whereby freight cars must be reloaded to or toward the owning roads, which went into effect last week. A few of the traffic managers believe that the new rule will work harm but the majority are hopeful for good results.

Statements to the effect that all of the motor car makers are driving cars to dealers and distributers have been somewhat exaggerated as have other reports that the companies were seeking drivers. The Buick Motor Car Co. and the Reo Motor Car Co. both of whom were reported in news dispatches, to be in need of hundreds of drivers, state that these reports are without foundation, and that they have been besieged by thousands of letters from individuals who thought the dispatches were correct.

Ford has found little difficulty in getting freight cars, and is able to make all necessary shipments from Detroit. The company has not found it necessary to resort to overland driving.

Paige finds the freight-car situation considerably improved, and is getting its production under way with little difficulty. The company has been driving overland less than 15 cars per week.

Studebaker believes the freight conditions have passed their highest point of congestion. The company is not doing much overland driving, and up to this time has not been forced to tie up or hinder its production.

Cadillac states the situation is improved, and believes it will probably clear up from now on. The company has been driving about 50 cars per day overland to points within a radius of Rochester, Pittsburgh and Cincinnati.

Maxwell has secured sufficient freight cars to enable it to make all shipments by rail, and has found it unnecessary to resort to overland driving. The company is getting all of the empties it needs, and makes shipments from here promptly.

Hudson has shipped 436 cars overland within the past three weeks, but now believes that conditions will allow it to lower this number.

Packard has approximately $1,000,000 worth of cars on hand which it is unable to ship by rail. The company has cut down its production because of the situation, and is driving as many cars as possible overland.

Hupmobile is driving a few cars overland and is securing enough freight cars to handle the balance of its production, which has been somewhat reduced by the freight-car shortage.

Chalmers has found it necessary to reduce production and to drive about 60 cars per day to Chicago, from which point the cars are loaded on freight cars and shipped.

Dodge state that "the situation is considerably improved, and that more cars are being moved to and from the factory every day." The company drove 500 cars overland in one day, two weeks ago, and now drives about 75 cars per day.

Near-by cities find no difficulty in securing freight cars for outbound freight, but have encountered some trouble with inbound freight, and suffer somewhat from lack of material.

Monroe, at Pontiac, finds it can secure sufficient freight cars to handle its production, but is slightly hampered by a shortage of materials. The same applies to other Pontiac concerns.

Probably the most severe trouble has been experienced by the **Reo** company, at Lansing, where production has been cut about 50 per cent, and the majority of the cars made are driven overland.

The Willys-Overland Co. reports difficulty in securing sufficient freight cars, but has not been forced to cut down production to any extent. The company drives about 50 cars overland daily.

Fabrikoid Takes Over Marokene

WILMINGTON, DEL., Feb. 26—The Du Pont Fabrikoid Co. has purchased the Marokene Co., Elizabeth, N. J., which manufactures a material similar to fabrikoid. R. B. Heyward, who has been assistant superintendent of the Fabrikoid company's Newburgh plant will become superintendent of the Marokene plant at Elizabeth, N. J. No changes will be made to the present staff of employees.

Lyons-Atlas Acquires Hume Tractor

INDIANAPOLIS, IND., Feb. 27—The Lyons-Atlas Co., manufacturers of internal combustion and Diesel engines, has purchased the plant of the Hume Mfg. Co., Hume, Ill., manufacturers of farm tractors, and the plant will be moved to this city. Patents and stock parts of the Illinois company also were acquired and farm tractors will be manufactured here on a large scale. The company hopes to place 5000 general purpose farm tractors on the market this year. Its force of workmen will be increased from 1200 to 1600.

Ben Hur Plans 5-10 Cars a Week

CLEVELAND, Feb. 22—The Ben Hur Motor Co. has shipped between thirty and forty cars up to the present and plans to make five to ten cars per week for the time being as it finds difficulty in securing bodies. It has a capacity for twenty cars per day in the one structure and will erect two more buildings with 240,000 sq. ft. of floorspace in the near future. The company has occupied for the last 20 days a structure in Willoughby, Ohio, which is 400 by 150 ft., two stories, and comprises 66,000 sq. ft. of floorspace. The building is nearing general completion and it is expected work will be started in it within 60 days. A stockholders meeting will be held in March to vote upon a proposed capital increase from $1,000,000 to $6,000,000.

Redden Plant at Jackson

JACKSON, MICH., Feb. 26—Directors of the new Redden Motor Co. voted Saturday to locate the Redden Mfg. plant and offices at Jackson, Mich. The Redden trucks will be manufactured here, probably with steel purchased at the Joliet mills in which some of the directors are interested. Briscoe dealers will also handle the truck.

Used Car Show Planned by Dealers of Newark

Will Be Staged March 5-10 Following Regular Show—Daily Auctions to Be a Feature

NEWARK, Feb. 26—Newark is going to have a used car show. It will be held in the Palace Ballroom, Washington and Bleecker Streets, beginning next Monday, March 5, immediately after the close of the regular show, and will run for a week, ending March 10. Auctions will be held both afternoon and night, the cars being put under the hammer.

Eastern Plant for Fageol?

NEW YORK, Feb. 26—The Fageol car in all probability will be produced in the East; plans for an Eastern factory are now under consideration and it is understood that it may be located somewhere adjacent to New York. The car is at present produced by the Fageol Motors Co. Oakland, Cal., and is distinguished by being the highest priced American chassis on the market. It is equipped with a six-cylinder Hall-Scott aviation motor which develops 125 hp. In the event an Eastern plant is established it probably will be used for the production of the car for the whole country, the Oakland plant being converted to other uses. President Fageol is at present in the West but is expected in New York within a few days.

Move Studebaker Offices to South Bend

DETROIT, Feb. 24—The advertising and sales departments of the Studebaker Corp. will be moved to South Bend, Ind., about April 1. The company has always maintained its executive offices at South Bend and is making this move to secure a greater concentration of the administrative forces.

Alliance Companies See Trouble

ALLIANCE, OHIO, Feb 26—A receiver has been appointed for the Alliance Rubber Co., and the Alliance Tire and Rubber Co. A selection of appraisers has not been made and no estimate of assets and liabilities made, but this will be had within a few days.

Perlman Sues Firestone

NEW YORK, Feb. 26—The Perlman Rim Corp. has brought suit against the Firestone Tire & Rubber Co. charging infringement of the Perlman patent on a demountable rim. The patent number is 1,052,270. The Perlman patent achieved its chief prominence about a year ago when the United States Circuit Court of Appeals in this city declared the patent valid and infringed by the Standard Welding Co. Since the decision of a year ago Louis H. Perlman, the inventor, has formed the Perlman Rim Corp., capitalized at $10,000,000 now a subsidiary of the United Motors Corp. The suit asks for the usual injunctions, profits, damages and costs.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Make	Motor	S. A. E.	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tire	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-44	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	122	32x4	SS	1195	†1250	1195	1495	1820	....	....
ALLEN																	
Classic	4-3½x5	22.5	Wsths	Stmbg	Wsths	C	3	112	32x3½	SS	850	850	†850	1175	....	....	1195
AMERICAN-SIX																	
A	6-3 x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1285	....	....	....	....	....
AMS-STERLING																	
17	4-3½x4½	15.6	Bosch	Stmbg	Bosch	DP	3	110	30x3½	SS	....	....	....	....	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25.4	Wsths	Own	Wsths	DP	3	120	33x4	SS	1275	1250	*1250	....	....	....	....
APPERSON																	
6-17	6-3½x5	29.4	Remy	Rafid	Bijur	DP	3	130	34x4	SS	1750	....	1750	....	....	....	....
8-17	8-3½x5	31.2	Remy	Rafid	Bijur	DP	3	130	35x4½	SS	2000	....	2000	....	....	....	....
ARBENZ																	
	4-3½x5	16.9	Conn	Carter	Disco	C	3	108	30x3½	C	....	675	....	....	....	....	....
AUBURN																	
6-39	6-3½x5	23.4	Remy	Rafid	Remy	DP	3	120	34x4	SS	1145	1145	†1145	....	....	....	1220
6-44	6-3½x5½	29.4	Deleo	Rafid	Deleo	DP	3	131	35x4½	SS	....	†1535	1535	....	....	....	1785
AUSTIN																	
Hy-King	12-2½x5	39.7	Deleo	Stmbg	Deleo	D	6	142½	34x4½	SS	3750	3750	3750	4550	4950	5250	....
BIDDLE																	
D	4-3½x5½	22.5	Dixie	Zenith	G & D	DP	4	122	32x4	QD	2200	2350	†2275	....	....	3800	3900
BOUR-DAVIS																	
17	6-3½x4½	25.3	G & D	Stmbg	G & D	DP	3	118	32x4	QD	....	1250	....	....	....	....	....
BREWSTER																	
	4-4x5½	25.6	Bosch	Zenith	U. S. L.	C	3	125	34x4½	SS	†6500	....	....	....	7500	7700	....
BRISCOE																	
B4-24	4-3 1/16x5½	16.3	Conn	Mayer	Splitdorf	C	3	105	30x3½	QD	685	685	†685	....	....	....	810
8-38	8-3 x3½	28.8	Remy	Zenith	Apleo	C	3	114	32x3½	QD	†985	985	....	....	....	....	....
4-38	4-3 1/16x5½	18.9	Remy	Mayer	Apleo	C	3	114	32x3½	QD	†785	785	....	....	....	....	....
BRUNSWICK																	
	4-4½x5½	36.1	Bosch	Rafid	Wsths	..	3	....	....	....	....	....	1950	....	....	....	....
BUICK																	
D 4-34-35	4-3½x4½	18.2	Deleo	Marvel	Deleo	C	3	106	31x4	C	660	675	....	....	....	....	....
6-44-47	6-3½x4½	25.3	Deleo	Marvel	Deleo	C	3	115	34x4	SS	1040	1070	‡1440	....	1835	....	....
E-49	6-3½x4½	27.3	Deleo	Marvel	Deleo	DD	3	124	34x4½	SS	....	....	1385	....	....	...	....
CADILLAC																	
55	8-3½x5½	31.2	Deleo	Own	Deleo	D	3	132 / 125	36x4½	SS	†2240	2240	2240	2960	....	3760	2835
CASE																	
T-17	4-3½x6	21.0	Conn	Rafid	A-Lite	C	3	120	34x4	QD	†1190	....	1190	....	. ..	....	....
CHALMERS																	
6-30	6-3½x4½	25.4	Remy	Stmbg	Wsths	DP	3	115 / 122	32x4	SS	1230	1250	1350	1440	1850	2550	....
CHANDLER																	
17	6-3½x5	27.3	Bosch	Rafid	G & D	D	3	123	34x4	SS	†1395	....	1395	1995	1995	2695	1995
CHEVROLET																	
4-90	4-3½x4	21.7	Conn	Zenith	A-Lite	C	3	102	30x3½	C	550	550	....	....	....	....	....
F5-F2	4-3½x4	21.7	Conn	Zenith	A-Lite	C	3	112	32x3½	SS	800	800	....	....	....	....	....
D	8-3½x4	36.45	Conn	....	A-Lite	C	3	120	34x4	SS	1385	....	....	....	....	....	....
COLE																	
8-60	8-3½x4½	39.2	Deleo	Stmbg	Deleo	C	3	127	35x4½	SS	†1695	....	1695	....	2295	2295	2195
CROW-ELKHART																	
CE-35	4-3½x5	19.6	Conn	Zenith	Dyneto	DP	3	114	32x3½	SS	†825	795	....	....	....	....	935
DANIELS																	
8	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	†2600	....	2800	....	....	4000	....
DAVIS																	
H & I	6-3½x4½	25.3	Deleo	Stmbg	Deleo	C	3	119	34x4	....	1195	1195	1195	1595	1795	....	1995
J	6-3½x5½	29.4	Deleo	Stmbg	Deleo	C	3	124	34x4½	....	....	1495	1495	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25.3	Conn	Ball	A-Lite	D	3	119	33x4	SS	‡1195	1195	....	1375	....	....	1395
F	4-3½x4½	22.5	Dixie	Schebler	Dyneto	D	3	112	33x4	SS	....	985	....	....	....	....	....
DISPATCH																	
G	4-3½x5	23.5	Bosch	Rafid	U.S.L.	D	4	120	36x3½	....	1135	1210	....	1400	....	....	....
DIXIE FLYER																	
1917	4-3½x5	16.9	Conn	Carter	Dyneto	C	3	112	32x3½	SS	†845	845	....	....	1275	....	....
DODGE BROTHERS																	
	4-3½x4½	24	Deleo	Stewart	N.E.	D	3	114	32x3½	S	785	785	....	950	1185	....	950
DORRIS																	
I-B-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	3	126	36x4½	SS	....	....	3475	3250	3250	3675	....

Model	Motor	S. A. E.	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tire	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
LOZIER																	
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	.. .		....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																	
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD		132	35x4½	SS	....	....	1500	....	....	....	....
MADISON																	
4	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	120	34x4	SS	....	....	....	....	....	....	....
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	115	34x4	SS	1050–1150		....	....	....	....	....
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	124	34x4	SS	†1150	{1150 \ 1250}	1150–1250	....	....	....	....
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	SS	695	....	....	....	....	....	....
MAJESTIC																	
M	8-3 x5	28.8	A.Kent	....	R & M	DP	3	125	32x4	....	†1500	1650	1650	....	....	....	....
A	8-3½x5	33.8	A.Kent	....	R & M	DP	3	135	35x5	....	†3000	3000	3000	....	....	....	....
MARION HANDLEY																	
6-40	6-3½x5	23.4	Wsths	Stmbg	Wsths	DD	3	120	32x4	SS	†1275	....	1275	....	....	....	....
6-60	6-3½x5½	29.4	Wsths	Stmbg	Wsths	DD	3	125	35x4½	SS	....	....	1475	....	....	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bosch	C	3	136	34x4½	QD	††3100	3050	3100	....	4100	4500	....
MAXWELL																	
25	4-3½x4½	21	Sims	K-D	A.Kent	C	3	103	30x3½	C	620	635	....	865	985	....	....
McFARLAN																	
	6-4½x6	48.6	Bosch	Stmbg	Wsths	DP	3	136	35x5	QDR	3750	3800	3500	....	....	....	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Corser	U.S.L.	DD	4	132	34x4½	QDC	†3500	*3500	.. ....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Corser	U.S.L.	DD	4	115	32x4	QDC	3400	Raceabout, 3250	..	....	....	....	....
METZ																	
25	4-3½x4	24	Dixie	A.W.T.	G & D	F		108	32x3½	C	545	545	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafid	Splitdorf	C	3	120	32x4	SS	1150	1150	....	....	....	....	300x
C-42	6-3½x5	29.4	Conn	Rafid	Wsths	C	3	127	34x4	SS	‡1425	1425	1460	1995	2175	2785	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1495	1495	....	....	....	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1840	....	1840	2490	2440	....	....
MONARCH																	
	8-3 x5	26.8	A.Kent	Zenith	....	D	3	125	35x4½	....	....	....	1500	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Heinse	D	3	108	32x3½	SS	795	795	....	....	....	....	....
N-O	6-3½x4½	25.4	Heinse	Stmbg	Heinse	D	3	115	33x4	SS	995	995	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	DC	565	....	....	....	965	....	....
M-4	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	DC	....	965	....	....	....	....	....
MOON																	
6-43	6-3½x4½	25.3	Deleo	Rafid	Deleo	DD	3	118	32x4	SS	‡1295	1295	....	....	....	....	1450
6-66	6-3½x5½	29.4	Deleo	Rafid	Deleo	DD	3	125	35x4½	SS	†1690	....	1690	1690	2350	....	....
MURRAY																	
70-T	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	..	2500	....	2500	....	....	Chassis	2000
NATIONAL																	
Hxy	6-3½x5½	29.4	Dixie	Rafid	Wsths	C	3	128	34x4½	QDR	†1750	....	1750	2400	2350	....	....
Hxy	12-2½x4½	39.7	Deleo	Rafid	Bijur	C	3	128	34x4½	QDR	†2150	....	2150	2800	2750	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	....	....	....	....	2200	....	....
OAKLAND																	{995 / 1090}
34	6-3½x4½	18.9	Deleo	Marvel	Deleo	C	3	112	32x4	SS	‡ 875	875	....	....	....	....	
50	8-3½x4½	30.2	Deleo	Stmbg	Deleo	C	3	127	34x4½	SS	....	....	1585	....	....	....	....
OLDSMOBILE																	
45	8-2½x4½	26.4	Deleo	Johnson	Deleo	C	3	120	33x4	SS	1295	1295	....	....	1850	....	1775
46	6-2½x4½	19.8	Deleo	Johnson	Deleo	C	3	113	32x4	SS	†1095	1095	...	....	....	....	....
OVERLAND																	
85-4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	33x4	SS	835	850	....	1250	1450	....	....
85-6	6-3½x4½	25.3	Conn	Titan	A-Lite	C	3	116	33x4	SS	970	985	....	1385	1585	....	....
OWEN																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	..	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7	Bosch	Zenith	O-M	OM	..	136	35x5	SS	‡3950	†3950	3950	....	....	5000	....
PACKARD																	
2-35								{135									
2-25	12-3 x5	43.2	Bijur	Own	Bijur	DD	3	136	35x5	QDC	3050	3050	3050	4150	....	4450	....
PAIGE																	
6-38	6-3½x5	23.4	Remy	Rafid	G & D	D	3	117	32x4	SS	1175	1175	....	....	....	....	....
6-46	6-3½x5½	29.4	Remy	Rafid	G & D	D	3	124	35x4½	SS	....	....	1495	....	....	....	....

*6-passenger. †4-passenger. ‡2-passenger.

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DORT																		
9	4-3½x5	16.9	Conn	Carter	Wsths	C	3	106	30x3½	QDC	‡886	886	..	..	....	1088	...	818
DREXEL																		
R-30-35	4-3½x5	19.6	Bosch	Stmbg	Bjur	C	3	112	32x4	....	985	985	....	....	....	....	....	....
	4-3½x5	19.6	Bosch	Stmbg	Bijur	D	3	118	34x4	....	....	1650	....	....	....	....	....	....
ELCAR																		
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS	845	845	†845	....	....	....	....	....
ELGIN																		
	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	116	33x4	....	†985	985	....	....	....	....	....	....
EMERSON																		
Four	4-3½x4	22.5	A.Kent	Kngstn	....	D	3	110	30x3½	C	....	895	....	....	....	....	....	....
EMPIRE																		
45	4-3½x5	24.0	A-Lite	Stmbg	A-Lite	C	3	116	33x4	SS	....	960	....	....	....	....	....	....
60-R	6-3½x4½	25.6	Conn	Stmbg	A-Lite	C	3	120	34x4	SS	†1145	....	....	....	....	1625	....	....
70	6-3½x4½	25.6	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1235	....	....	....	....	....	....
ENGER																		
12	12-2½x3½	34.2	Wsths	Stmbg	Wsths	DP	3	116	32x4	SS	....	1295	....	....	....	....	....	....
4	4-3½x4½	21.7	A-Kent	....	....	C	3	106	32x3½	....	....	695	....	....	....	....	....	....
FIAT																		....
55	4-5½x6½	42	Wsths	Zenith	Wsths	D	4	140	35x5	QDC	....	....	5500	....	....	6500		
56	6-4½x6	45.9	Bosch	Own	Own	D	4	135	37x5	QDC	‡5350	5350	5350	....	....	....	....	....
FORD																		
T	4-3½x4	22.5	Own	{Holly {Kngstn	....	D	2	100	30x3½	C	345	360	....	505	645	....	....	
FOSTORIA																		
	4-3 x4½	14.4	Remy	Zenith	....	D	3	108	30x3½	C	....	695	....	....	....	....	....	....
FRANKLIN																		
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	32x4	SS	1800	1850	†1850	2650	2750	3000	....	
GLIDE																		
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	....	1250	....	....	1325	....	....	
GRANT																		
K	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	112	32x3½	....	‡875	875	....	1100	1050	....	....	
HACKETT																		
Four	4-3½x4½	22.5	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†888	888	....	....	....	....	....	
HAL TWELVE																		
	12-2½x5	39.7	....	Stmbg	Wsths	DP	3	135	34x4½	SS	2600	†2600	2600	....	....	4500	3500	
HALLADAY																		
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....	
R	6-3½x5	23.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1395	....	....	....	....	....	
HARROUN	4-3½x5½	16.9	Bosch	Special	Remy	C	3	106	30x3½		....	595	....	....	....	....	....	
HARVARD																		
4-2T	4-3 x4½	14.4	....	Zenith	Wagner	C	3	100	28x3	QD	750	....	....	....	....	....	....	
HAYNES																		
36	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1595	....	....	2260	....	....	
37	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1725	....	1725	....	2390	....	....	
40	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	121	34x4½	SS	....	2095	....	....	2760	....	....	
41	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2225	....	2225	....	2890	....	....	
HOLLIER																		
186	6-3 x4½	21.6	Remy	Stewart	A-C	C	3	116	32x3½	SS	....	895	....	....	....	....	....	
178	8-3 x4½	28.8	A.Kent	Stewart	Apleo	C	3	116	34x4	SS	†1185	1185	....	....	....	....	....	
HUDSON																		
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS	1650	....	1650	1950	2175	2925	....	
HUPMOBILE																		
	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	119	34x4	SS	1185	1185	....	....	1735	....	....	
N-U	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	134	35x4½	SS	....	....	1340	....	....	....	....	
INTER-STATE																		
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	875	925	†940	....	....	....	....	
JACKSON																		
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS	1295	1295	†1395	....	1995	....	1505	
350	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	112	32x4	SS	....	1195	....	....	....	....	....	
JEFFERY																		
Four	4-3½x5½	22.5	Dixie	Stmbg	Bijur	DP	3	116	34x4	SS	1065	....	1095	....	1260	....	1320	
Six	6-3½x5½	29.4	Dixie	Rafid	Bijur	DP	3	125	34x4	SS	1435	....	1465	....	1630	....	1690	
JORDAN																		
Sixty	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DD	3	127	35x4½	SS	1650	†1750	1650	2300	2350	3000	....	
KING																		
E	8-3 x5	28.8	A.Kent	Ball	W.Lnrd	DP	3	120	34x4	SS	†1585	‡1585	1585	....	2150	....	....	
KISSEL																		
642	6-3½x5½	31.54	Eisnn	Stmbg	Own	DD	3	128	34x4	SS	....	1650	1850	....	2000	....	....	
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	33x4	SS	†1195	1195	....	1635	1950	....	1635	
KLINE																		
638	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1175	1195	†1195	....	....	....	....	
LAUREL																		
35	4-3½x4½	22.5	Dixie	Schebler	Disco	D	3	112	32x3½	QD	†895	850	885	....	....	....	....	
LEXINGTON																		
6-O-17	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	†1185	1185	....	1350	1350	....	....	
6-P	6-4½x5½	40.8	A.Kent	Stmbg	Wsths	C	3	144 133	36x4½	QD	†2675	....	2875	....	....	....	....	
LIBERTY																		
6	6-3½x4½	23.4	Delco	Rafid	Delco	DP	3	115	33x4		†1195	1195	....	....	1795	....	....	
LOCOMOBILE																		
R-7	6-4½x5	43.3	Eisnn	Ball	Wsths	DD	4	130	37x5	QDC	†4750	*4800	4800	....	....	5800	....	
M-7	6-4½x5½	48.6	Eisnn	Own	Wsths	DD	4	142	37x5	QDC	*5400	....	5400	....	....	6500	....	
PARTIN-PALMER																		
20	4-3½x4½	15.6	Conn	Schebler	A-C	DD	3	96	30x3½	C	645	..	..	....	....	.....	..	....
32	4-3½x5	19.6	Conn	Carter	Disco	DD	3	110	32x3½	C	....	695	....	....	....	....	....	....
PATERSON																		
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	32x4	C	†1095	1095	1095	....	....	....	....	
PATHFINDER																		
2B-TC-2C	12-2½x5	39.7	Delco	Stmbg	Delco	DD	3	135	35x5	SS	....	....	3250	....	....	....	....	
PEERLESS																		
56-2	8-3½x5	33.8	A.Kent	Special	G & D	DD	3	125	35x4½	SS	†1980	....	1980	2700	2840	3350	....	
PHIANNA																		
M	4-3½x6	24.9	Bosch	H & N	W.Lnd.	DD	4	....	32x4½	....	Chassis	....	3600	....	....	....	....	
PIERCE-ARROW																		
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	36x4½	QDC	4800	4800	†4800	5900	....	....	....	
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	37x5	QDC	5400	5400	5000	6800	....	....	....	
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	38x5½	QDC	†6400	6400	6500	7800	....	....	....	
PILOT																		
6-45	6-3½x5	23.4	Delco	Zenith	Delco	DP	3	119	32x4	SS	†1150	1150	....	....	....	....	....	
PREMIER																		
6-B	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	†1895	....	1895	....	2900	3150	....	
PRINCESS																		
4-36	4-3½x4½	22.5	Splitdorf	Schebler	Disco	D	3	108	32x3½	....	775	775	‡775	....	....	....	....	
PULLMAN																		
424-32	4-3½x4½	22.5	Dixie	Stmbg	Splitdorf	D	3	114	31x4	SS	825	825	†825	....	....	....	....	
REGAL																		
4-32	4-3½x4½	19.6	Heinse	Carter	Heinse	C	3	108	30x3½	DC	....	745	....	....	....	....	....	
F	8-3 x4½	28.8	....	Johnson	Dyneto	C	3	115	33x4	SS	1200	....	....	....	....	....	....	
REPUBLIC																		
E	6-4½x5	43.3	Delco	Rafid	Delco	C	4	133	36x4½	SS	....	†2950	2950	....	....	....	....	
REO																		
M	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	†1250	1250	....	1750	....	....	
R	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS	‡875	875	....	....	....	....	1025	
RICHMOND																		
6-17	6-3½x5	29.4	Delco	Stmbg	Delco	C	3	124	35x4½	....	....	....	....	....	....	....	.....	
4-35	4-4 x4½	25.6	Dixie	Stmbg	Delco	C	3	124	35x4½	....	900	900	925	....	....	....	....	
ROAMER																		
R.A.	6-3½x5	23.4	Bosch	Stmbg	Bijur	D	3	127	34x4	SS	2150	1850	....	....	....	....	....	
ROSS																		
C	8-3½x5	33.8	A.Kent	Zenith	W.Lnrd.	DD	3	130	35x4½	SS	‡1550	†1550	1550	....	....	....	....	
SAXON																		
B-5-R	4-2½x4	12.1	A.Kent	Rebh	Wagner	DD	3	96	30x3	DC	495	....	....	....	....	....	....	
S-4	6-2½x4½	19.8	Remy	Rafid	Wagner	DD	3	112	32x3½	SS	....	865	....	....	....	....	....	
SCRIPPS-BOOTH																		
D	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	1460	
G	4-3½x4	24.5	Remy	Zenith	Remy	C	3	110	30x3½	C	935	....	....	1450	....	....	....	
SIMPLEX																		
5	6-4½x6½	45.9	Eisnn	Nwcmb	Bosch	D	4	143½	37x5r	QDC	Chassis	6000	....	....	....	....	....	
SINGER																		
17	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	136	35x5	QD	3500	†3500	3500	....	....	4600	....	
STANDARD																		
8	8-3½x5	33.8	Splitdorf	Zenith	Apleo	D	3	127	35x4½	....	†1950	....	2000	....	....	3500	2500	
STANLEY																		
Steamer	2-4 x6	....	....	....	....	..	..	130	34x4½	SS	‡2300	2200	2300	....	....	....	....	
STEARNS																		
SK14	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	QDC	††1450	1450	....	2050	....	2900	2050	
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	123	35x4½	QDC	†2150	....	2150	2900	....	3500	....	
STEPHENS																		
60-65	6-3½x4½	25.3	Conn	Zenith	A-Lite	DD	3	115	32x4	....	‡1150	1150	....	....	....	....	....	
STEWART																		
T	6-3½x5	29.4	Bosch	Rafid	Wsths	D	3	127	34x4½	SS	‡1950	....	1950	....	....	....	....	
STUDEBAKER																		
SF-4-40	4-3½x5	24.0	Remy	Schebler	Wagner	C	3	112	34x4	SS	‡930	....	940	....	....	....	1140	
ED-6-50	6-3½x5	36.32	Remy	Schebler	Wagner	C	3	122	34x4	SS	‡1170	....	1180	1750	1700	2600	1380	
STUTZ																		
R	4-4½x5½	36.1	Bosch	Stmbg	Remy	C	3	130	34x4½	SS	2275	†2550	*2550	....	....	....	....	
SUN																		
17	6-3½x5	23.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1145	1095	1145	....	1295	....	....	
VELIE																		
28	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	115	32x4	SS	1115	1135	†1135	1750	1685	....	....	
27	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	4	124	35x4½	SS	....	....	1600	....	....	....	....	
WESTCOTT																		{2190
S-17	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	1590	1590	1690	....	....	....	{2090	
WHITE																		
GAH	4-3½x5½	22.5	Bosch	Own	Own	P	4	115	32x4	QDC	‡2650	2700	.....	..	....	....	....	
GED	4-4½x6½	28.9	Bosch	Own	Own	P	4	133½	36x4½	QDC	3750	....	3800	....	....	....	....	
16-Valve	4-4½x5½	28.9	....	Own	L.N.	P	4	137½	37x5	....	....	....	4600	....	....	....	....	
WILLYS-KNIGHT																		
88-4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	121	34x4½	SS	....	....	1285	....	1950	1950	....	
WILLYS																		
88-6	6-3½x5½	29.4	Conn	Tltsn	A-Lite	C	3	125	35x4½	SS	....	....	1325	....	....	....	....	
WINTON																		
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	2685	2685	2735	3600	3900	3900	....	
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4500	4750	4750	....	
YALE																		
8	8-3½x4½	31.3	Remy	Rafid	Disco	DD	3	126	34x	....	....	....	1350	....	....	....	....	

*6-passenger. †4-passenger, ‡3-passenger.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Tltsn" Tillottson, "Atzr" Atomizer, "Rebh" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myers. NOTE—"37½x5½r" means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x means $300 extra.

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Bumper Makers Join Hands

NEW YORK, Feb. 27—Ten makers of bumpers will join to protect their customers. Over twenty patents are concerned in the settlement that has been reached. The action centers chiefly around the Discher patents, owned by G. F. Discher, president of the Gemco Mfg. Co., Milwaukee. The ten companies are the Gemco Mfg. Co., American Brass Foundry Co., Central Brass & Fixture Co., Milwaukee Auto Engine & Supply Co., L. P. Halladay Co., Emil Grossman Mfg. Corp., Auto Parts Mfg. Co., Cox Brass Mfg. Co., Au-To Compressor Co., and the J. H. Sager Co.

Five New Federal Trucks

DETROIT, Feb. 26—Five new Federal truck models have just been put on the market and will be exhibited at the Boston show. The capacities range from 1 to 5 tons, and two of these are new for the Federal company. These are the 1 and 5-ton models. The others are new models also but are refinements of the previous designs. They have capacities of 1½, 2 and 3½ tons. These five models are taken care of by three different motor sizes; one for the 1-ton, one for the 1½ and 2-ton, and the other for the 3½ and 5-ton. The motors are Federal designs and are similar throughout, as are the chassis of all five truck models in all important particulars. The most notable difference is that all have four speed gearboxes, except the 1-ton, which has three speeds. The 5-ton model is equipped with steel wheels with hollow spokes, whereas the smaller models are fitted with artillery wood wheels. The prices of the chassis are: 1-ton, $1,650; 1½-ton, $2,100; 2-ton, $2,300; 3½-ton, $3,000; 5-ton, $4,000.

Duluth Show Draws Record Crowd

DULUTH, Feb. 26—The third annual show of the Duluth Automobile Dealers' Association closed Feb. 24 after a week's run. A record attendance was reported by Manager W. F. Daly. The daily average was 4200 persons. The show included exhibits of 128 pleasure cars, 30 trucks, 4 electrics, and 40 accessory dealers.

White dealers had their annual dinner Wednesday night at the Holland hotel with Manager Earl Bradley of the White Sales Co. as host. Salesmanager C. E. Denzer from Cleveland was the guest of honor. Sixty-five dealers attended the dinner of the Mutual Auto Co., E. J. Filiatrault president, at the St. Louis hotel. C. F. Sullivan of Minneapolis, district Overland representative, and C. M. LaRue of the factory, were speakers.

Paige dealers were banqueted on Thursday night at the Spalding hotel by H. B. Knudsen of the H. B. Knudsen Auto Co. At the tables there were 100 persons. Frederick E. Murphy of Minneapolis made an address and F. D. Clinton of the factory. The E. H. Whitney Motor Co. was host to Dodge Bros. dealers in its territory on Friday night at the Spalding.

Southern Ford Dealers Band Together

BIRMINGHAM, ALA., Feb. 26—The Ford Efficiency Club of Birmingham has been organized at a dinner at the Hotel Tutwiler. Officers are: W. M. Davis, president; C. O. Defbaugh, vice-president; Roy Thrasher, secretary; W. S. Dawkins, treasurer; R. H. Whitner, business manager. Reese Adamson, branch manager, is organizer of the club. At the first meeting a talk was heard by C. E. Ingalls, a Montgomery, Ala., agent.

Coming—THE SHOW CALENDAR—Events

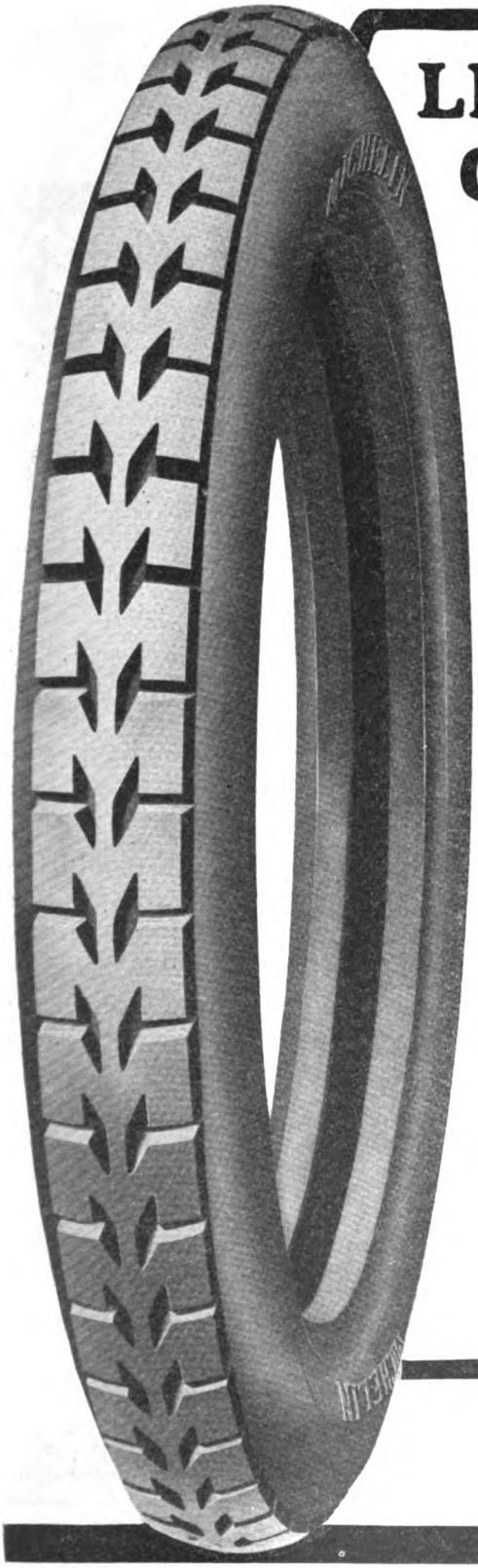
Newark, N. J.	N. J. Automobile Trade Assn., First Regiment Armory; Mgr.: Claude E. Holgate.	Feb. 24-Mar. 3
Atlanta, Ga.	Atlanta Automobile Trade and Accessory Assn., Auditorium; Mgr.: R. H. Martin.	Feb. 24-Mar. 3
Brooklyn, N. Y.	Sixth Annual, Brooklyn Motor Vehicle Dealers Assn., Twenty-third Regiment Armory.	Feb. 24-Mar. 6
Great Falls, Mont.	Show	Feb. 26-Mar. 3
Charleston, S. C.	First Charleston Adv. Club and Local Dealers Tent, Marion Square; Mgr.: Sidney Rittenberg.	Feb. 26-Mar. 3
Wilkes-Barre, Pa.	Mgr.: Hugh B. Andrews.	Feb. 26-Mar. 3
Utica, N. Y.	Utica Automobile Dealers Assn., State Armory.	Feb. 26-Mar. 3
Omaha, Neb.	Twelfth Annual Omaha Automobile Show Assn.; Mgr.: Clarke G. Powell.	Feb. 26-Mar. 3
South Bethlehem, Pa.	Commercial Vehicles; Mgr.: J. L. Elliott.	Feb. 26-Mar. 3
Oneonta, N. Y.	Armory; Mgr.: John Kelly	Feb. 28-Mar. 3
Lafayette, Ind.	Show	Feb. 26-Mar. 3
Champaign and Urbana, Ill.	Automobile Trade Association of Champaign County, University of Illinois, Armory; Mgr.: Leslie R. Lumley.	Mar. 1-3
Green Bay, Wis.	Green Bay Automobile Dealers' Assn., Armory.	Mar. 3-5
Green Bay, Wis.	Brown County Automobile Trade Assn., Armory B.	Mar. 3-5
Washington, D. C.	Middle Atlantic Motor Assn., Inc., Union Bldg.	Mar. 3-10
Boston	Fifteenth Annual, Boston Automobile Dealers Assn.; Gen. Mgr.: C. I. Campbell.	Mar. 3-10
Birmingham, Ala.	First, 1823 First Avenue; Henry B. Marks, Gen. Director.	Mar. 5-10
Jamestown, N. Y.	Third Annual, Jamestown Automobile Dealers Assn., Armory; Mgr.: C. A. Hanvey.	Mar. 5-10
Parsons, Kan.	Show	Mar. 5-10
Wheeling, W. Va.	Automobile Dealers Assn., Market Auditorium Bldg.; Mgr.; F. A. Henderson.	Mar. 5-10
Bridgeton, N. J.	Second Annual, Bridgeton Automobile Dealers Assn., Preston Calender Plant; Mgr.: J. W. Acton.	Mar. 6-10
Fort Dodge, Ia.	Sixth Annual, White Terminal Warehouse; Mgr.: G. W. Tremain.	Mar. 6-10
St. Joseph, Mo.	St. Joseph Automobile Dealers Assn., Auditorium; Harry E. Mooers, Mgr.	Mar. 7-10
Canton, O.	Motor Car Co. showrooms; Mgr.: P. E. Moock, chairman of committee.	Mar. 7-14
Zanesville, Ohio	Muskingum Motor Club.	Mar. 10-17
Fort Worth, Tex.	Show	Mar. 12-14
Vancouver, B. C.	British Columbia Automobile Assn., Horse Show Building.	Mar. 12-17
Fargo, N. D.	North Dakota and Minnesota Auto Dealers Assn., Auditorium and Armory; Mgr.: W. M. Ball.	Mar. 13-16
Columbia, S. C.	Columbia Automobile Dealers' Assn., C. M. Asbill, Secy.	Mar. 17-24
Mason City, Ia.	Third Annual, Armory	Mar. 14-17
Davenport, Ia.	Coliseum Bldg., Tri-City Automobile Trade Assn.; Mgr.: C. F. Burmeister.	Mar. 14-17
Pittsburgh, Pa.	Show	Mar. 14-17
Pittsburgh, Pa.	Automobile Dealers Assn. of Pittsburgh; Motor Square Garden; Mgr., J. J. Bell.	Mar. 17-24
Washington, D. C.	Carnival and Open House Week.	Mar. 19-24
Paterson, N. J.	Sixth Annual Paterson Automobile Dealers Assn., Auditorium; Mgr.: Robert A. Mitchell.	Mar. 19-24
Cedar Rapids, Ia.	Cedar Rapids Automobile Trade Assn., Coliseum.	Mar. 19-24
Denver, Col.	Mammoth Hall. H. F. Blackwell, Mgr.	Mar. 20-25
Trenton, N. J.	Trenton Automobile Trade Assn., Armory; Mgr.: John L. Brock.	Mar. 21-24
Mankato, Minn.	Third Annual, Manakato Retail Automobile Dealers' Assn.	Mar. 22-24
Deadwood, S. D.	Fifth Annual; Mgr.: J. E. Nelson.	Mar. 27-31
Clinton, Ia.	Clinton Automobile Dealers Assn., Coliseum; management: Executive Committee.	Mar. 28-31
Stockton, Cal.	Second Annual San Joaquin Auto Trades Assn.; Mgr.: Samuel S. Cohn.	April 4-7
Spokane, Wash.	Interstate Fair	Sept. 2-9
Milwaukee, Wis.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15

General

Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6

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MICHELIN



LET MICHELIN DEALER-CO-OPERATION SAVE MONEY FOR YOU

The entire business of the Michelin Tire Company is conducted with the idea in mind that the best way to help Michelin is to help the Michelin Dealer.

All departments of the Michelin organization co-operate to put this idea into effect.

The Michelin Production Department helps the Michelin Dealer by producing the best tire that money can make, yet producing it so economically that the Michelin Dealer can offer this superb tire to his customers at prices considerably below the average.

The Michelin Sales Department helps the Michelin Dealer by giving him selling co-operation such as no other tire company has yet undertaken.

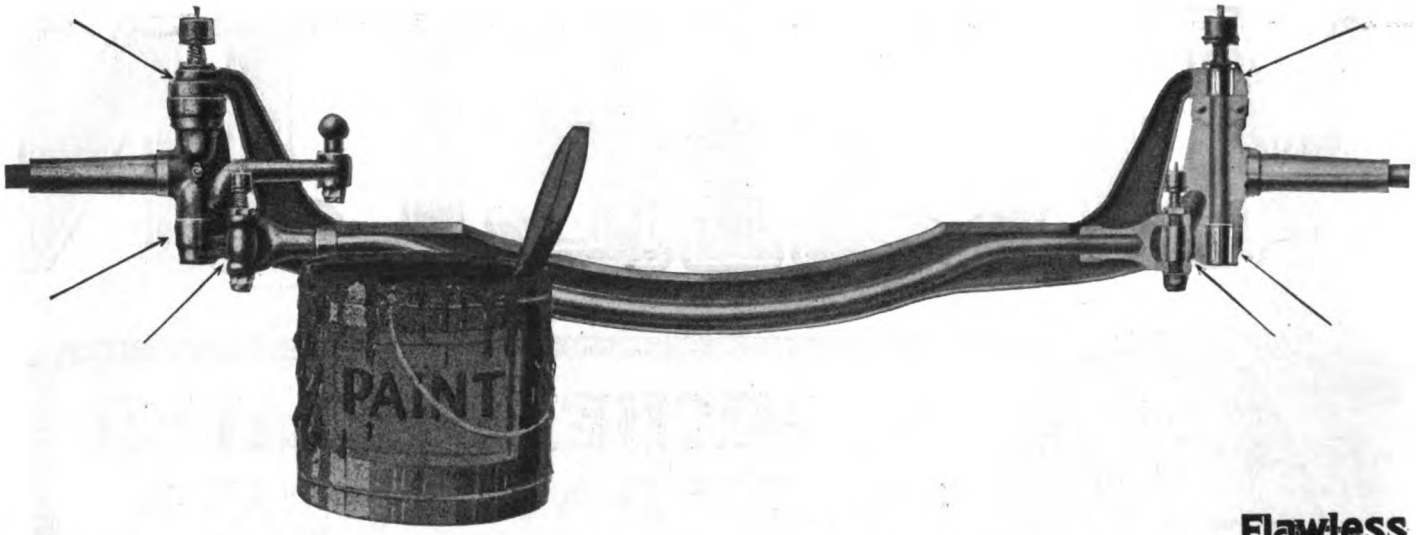
Dealer Co-operation is the corner-stone on which Michelin success is built.

Write us for particulars of the Michelin proposition.



Michelin Tire Company
Milltown, N. J.

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You Can't Cover Up Rattles and Power Loss With New Paint

Flawless Non-Gran

When your car has to be taken apart and overhauled—**something** has worn out. What?

Not the Gears, or the Ball or Roller Bearings. They are good for many years.

Not the Split, Adjustable Bearings. They are good for several years and then easily adjusted at small expense.

The Solid, Non-Adjustable Bushings are at fault.

There are a score or more of these little bushings here, there and everywhere throughout the whole car, nearly all so inaccessibly located that the car must be torn to pieces to get at them.

They are not split, cannot be adjusted, and therefore must be **renewed.**

Even **slight** wear of these little bushings means rattles and power loss.

If your car is high priced and excellently built, it doubtless already has NON-GRAN Bushings.

But if you are not the fortunate owner of a car that is Non-Gran equipped, for the sake of your own pocketbook and future peace of mind, when having your car overhauled see to it that your repairman replaces all worn bushings with Non-Gran.

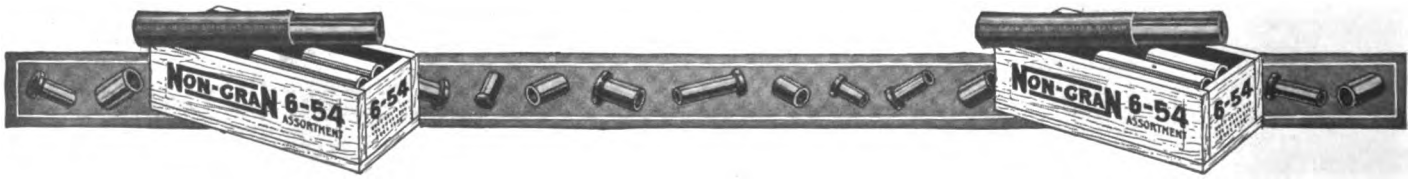
Almost any good repairman can replace the worn bushings in your car with NON-GRAN Bushings.

Nearly all repairmen carry an assortment of NON-GRAN cored bars from which they make their QUALITY bushings.

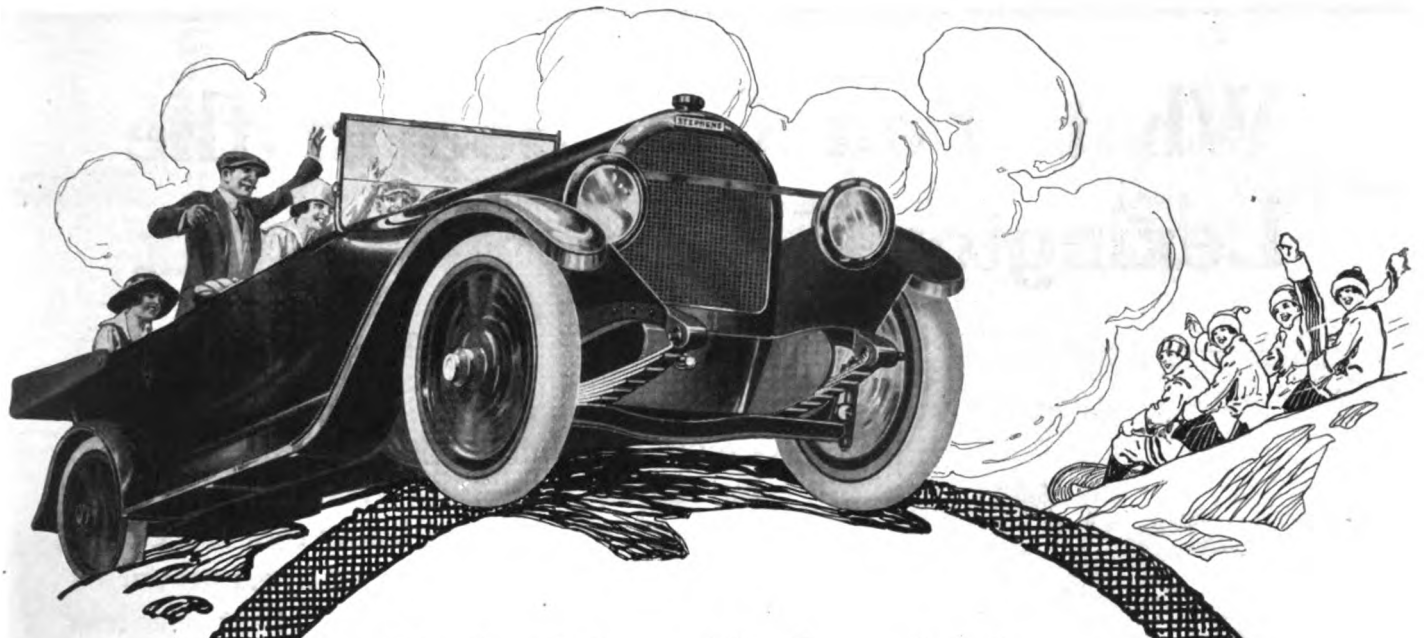
Repairmen have no trouble in getting these cored bars, for they are for sale by every jobber in the land.

American Bronze Company
Berwyn · · · Pennsylvania

HIGH SPEED
NON-GRAN
BEARING BRONZE



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No Straining—No Complaining

The Stephens Six was designed and made to climb hills. Willingly and quietly, the powerful six-cylinder motor takes the sturdy car to the top with the same ease and eagerness as it sends it racing over the level country at fifty miles an hour.

With throttle open and the gears in high, the Stephens Six approaches a steep hill with confidence, climbs the grade with enthusiasm, and when it reaches the top, neither quivers nor chokes from exhaustion.

The motor of the Stephens Six has reserve power, the punch for the emergency pull.

Gifted With The Fighting Heart

There is no cowardice in the Stephens Six motor. Climbing steep hills and ploughing through deep sand and mud is only part of the game, just as exhilarating as playing tag with Time and Distance on the open road.

The corpulent man, who pants and puffs on the tortuous uphill journey, has good reason to envy the Stephens Six. His bulk is too much for his strength. There is no superfluous poundage in the Stephens Six. What weight the car has is for strength and security and nicely distributed.

The Stephens Six has no fear of hills. Neither have driver and passengers. They know that the motor is powerful, that the frame and chassis is strong, that the wheel-base is long enough to eliminate side sway. The brakes hold when applied.

Stephens Six dealers say that there are no hills to climb in selling the Stephens Six for $1150. Their only complaint is that they have to brake their energies later in the season when the supply will not meet the demand. There is still some choice territory open. Our dealers' proposition is attractive, our co-operation valuable.

Two Models, each.....$1150
Five-Passenger Touring Car
Three-Passenger Roadster

STEPHENS MOTOR
Branch of Moline Plow Co.
MOLINE, ILLINOIS
Factory: Freeport, Ill.

STEPHENS SIX

"The Car With Punch"

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What *You* Can See in the Lexington Minute Man Six



TO most of them it was only a dusty road, but Zadig, the man who saw with his mind as well as his eyes, knew that the camel loaded with honey, blind in one eye, and with a tooth or two missing, had passed that way less than half an hour before. The flies that still buzzed at the side of the road, the fact that the herbage was cropped only on one side, and that wherever the camel had grazed tufts remained, told the story.

To most dealers, the LEXINGTON Minute Man Six is merely a good car at a reasonable price. They look at it—but they don't see it—

Because no man who knows as much about automobiles as a dealer ought to know, can really see the LEXINGTON Minute Man Six without coming to the conclusion that it is an extraordinary car, and without becoming enthusiastic about it.

This is a prejudiced statement, of course. Every maker believes his product is unique, but you can easily make a preliminary test of its reasonableness.

We believe you will admit after reading the next page that you have never really considered the LEXINGTON Minute Man Six—never really seen it as it is.

228% MORE POWER

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What Can *You* See in the Lexington Minute Man Six?

CAN you, first of all, see the style of the car? Does your eye tell you that it has lines and finish that are worthy of cars selling for a great deal more?

Can you see that the Moore Multiple Exhaust System alone adds a couple of hundred dollars in value, though not one cent extra is charged for it?

Can you see the importance and the value of the cut-steel starting gear, the engine-driven tire pump, the dry-disk type clutch, the double universal joints, wick-feed oil cups, double-bulb head lamps, the big Moto-Meter? Do you realize that these and many other features are unexpected refinements in a car at $1,185?

Does it mean anything to you that LEXINGTON is the only car in the market that gives a real Convertible Sedan or Coupe for as little as $165 over the Touring Car price?

Are you able to visualize the ten big closely allied factories back of LEXINGTON and to see what this implies in control of quality, as well as supply of parts?

Finally, can you see that the LEXINGTON dealer is not simply selling one of the many automobiles made—

But is selling a car that fairly scintillates with salient superiorities which any car buyer of common sense can easily appraise and appreciate?

If you can see these things and are in position to take on the dealership for such a car, write or wire for the LEXINGTON proposition.



THE LEXINGTON-HOWARD CO.
1950 Columbia Ave., Connersville, Ind., U. S. A.

228% MORE POWER

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The Steel Drum

Is a Complimentary Feature with

Tiolene

"The Motor Oil That's Clean"

Tiolene in Steel Drums (55 gal.) or half drums (31 gal.) is the logical way in which to buy oil, either for the private or public garage. It guarantees that you have during the entire season a uniform grade of oil giving the maximum of efficiency at the least possible cost.

Tiolene, "The Motor Oil That's Clean," is refined from the purest Pennsylvania Crude for the exclusive lubrication of automobile engines. It is sold to you under a positive guarantee—both by distributor and refiner.

Dealers should place orders early to care for the demand that is bound to be created by popularity of product and national advertising. Inquiries will secure prompt attention either personally by our representative or direct by mail.

Tiolene is also sold in 1 and 5 gal. cans.

DISTRIBUTORS

FOREIGN REPRESENTATION

Canadian Selling Co., Montreal, Que., Can.
The Chapin Company, Calgary, Alta, Can.
Santiago A. Pansardi, San Juan, Porto Rico.
W. A. Dettmann, Rocky Point Road, Arncliffe, N. S. W.
Crystal Oil Co., Barcelona, Spain; Milan, Italy.
Eddie E. Johnston, Belize, British Honduras.
Handel En. Industrie Mij. M. Adler, Amsterdam, Holland; Dutch E. Indies.
J. Didier & Co., Lyons, France.
J. Roberts & Son, Newmarket, Auckland, New Zealand.
Leon & Company, Santo Domingo.
Slowe & Company, Shanghai, China.
Mario C. Nogueras, Havana, Cuba.
M. A. Benhayon & Company, Gibraltar and Morocco.
Gaston, Williams & Wigmore, Inc., New York City (Distributors for South America).
Wearne Bros., Ltd., Singapore, Strait Settlements.

TIOLENE DISTRIBUTORS

General Automobile Supply Co., New York City.
Cornplanter Refining Co., Nashua and Manchester, N. H.
Richards & Conover Hdw. Co., Kansas City, Mo.
Richards & Conover Hdw. Co., Oklahoma City, Okla.
H. Channon Company, Chicago, Ill.
Doherty Sheerin & Co., Indianapolis, Ind.
Jackson Motor Supply Co., Pittsburgh, Pa.
Robertson Hdw. & Steel Co., Portland, Ore.
Joseph Strauss Co., Inc., Buffalo, N. Y.
Treman, King & Co., Ithaca, N. Y.
H. L. Hadden Co., Milwaukee, Wis.
N. M. Townley, Jr., Paterson, N. J.
Detsch & Co., Portland, Ore.
R. McC. Bullington & Co., Richmond, Va.
H. M. Rhea, Chambersburg, Pa.
The Banner Tire & Supply Co., Cleveland, Ohio.
The Columbia Auto Supply Co., Washington, D. C.
Pacific Implement Co., San Francisco, Cal.
Peaslee-Gaulbert Co., Inc., Louisville, Ky.
Marcus & Bailey, Denver, Col.
The Automobile Equipment Co., Detroit, Mich.
Janney, Semple, Hill & Co., Minneapolis, Minn.
Cook Iron Store Co., Rochester, N. Y.
Lee, Coit, Andreesen Hdw. Co., Omaha, Neb.
Union Hardware & Metal Co., Los Angeles, Cal.
Motor Equipment Co., Philadelphia, Pa.
Fort Wayne Oil & Supply Co., Fort Wayne, Ind.

MW-20A

Kindly send price on Tiolene Drum.....

½ Drum.....

Car.....

Year.....

Name.....

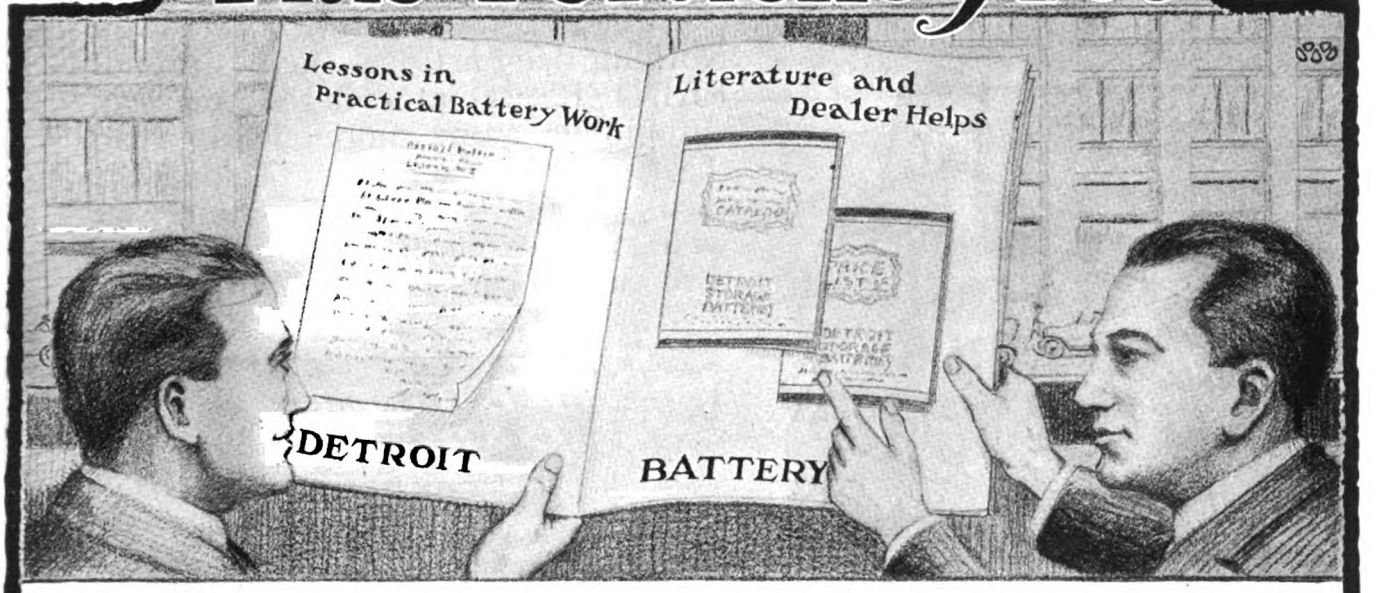
Address.....

Tiona Oil Company

Binghamton, N. Y.

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We Want to Send You This Portfolio *free*



This Proposition is Intended Only For Progressive Dealers

MEN who have made the most careful study of the motor car field say that the battery business is the most profitable and the fastest growing branch of the automobile and supply business. The business is still young in spite of its enormous volume. Motorists have only now come to recognize electric equipment as a positive necessity.

Scarcely half the cars running today have electric equipment. Two years from now over five million cars will be on the road *and* from eighty to ninety per cent will be electrically equipped. The battery business will be doubled or trebled. At least four million car owners will be buying batteries and service *again* and *again*. For, bear this important fact in mind: there are only two things on a car that are sure to wear out periodically—tires and batteries. This is what makes the battery business such a sure, safe-selling proposition.

We believe every progressive dealer should seriously consider entering the battery business now right at the beginning of its greatest growth. Few sections have enough good battery service stations. The business is sure. The profits are large.

The Detroit Battery Co. have a propositon for assisting any live, progressive dealer to enter the battery business, such as has never been made by any other battery concern. This large portfolio explains it fully.

Page 2 shows the big new Detroit Battery Plant that backs up the dealer and makes possible the shipment of orders and parts the day they are received.

Page 3 holds a specially dictated proposition to you—detailing exactly what will be necessary for you to do to enter the battery business in your particular locality—the expense and the probable profits.

Page 4 shows the equipment you will want to install and its cost.

Page 5 shows a sample of the course of lessons in practical battery work we give absolutely free to Detroit Battery men who have not had sufficient battery experience. We take the mystery out of the work. No Detroit Battery sales or service station will fail from lack of practical knowledge.

Pages 6 to 13 are devoted to displaying actual samples of our dealers helps sales and promotion plans—signs, catalogs, bulletins, direct advertising, etc.

Page 13 shows the simple office and accounting system we have had planned by an expert accountant for our dealers and service stations. You can see that our co-operation extends to points never before touched by any battery maker.

Page 14 shows a sample contract giving all details of our proposition.

By all means you ought to send for this portfolio at once. It may show you the way to a tremendous increase in business and profits.

DETROIT BATTERIES

Detroit Battery Company

Detroit, Michigan

Detroit Battery Company,
107 High Street, Detroit, Mich.

Send me the portfolio.

*Name*_____

*Address*_____

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VICTORIES



Nothing demonstrates the position of FEDDERS Radiators in the American automobile game more clearly than the results of the races. Taking the racing results since mid-summer, we want to call your attention to the performance of cars equipped with

FEDDERS RADIATORS

Here is a résumé of the Fedders' racing record for 1916.

Thirteen "firsts" out of twenty-seven officially sanctioned events. Forty-two "places" finished—and no Fedders-Equipt car was delayed at any time or forced to withdraw on account of cooling trouble.

1916 FEDDERS VICTORIES

CONEY ISLAND CUP RACE, 20 MILES, NEW YORK, MAY 13.

Car and Driver	Finish
Maxwell—Rickenbacher	4
Maxwell—Henderson	5

METROPOLITAN TROPHY RACE, 150 MILES, NEW YORK, MAY 18

Maxwell—Rickenbacher	1

INDIANAPOLIS INTERNATIONAL SWEEPSTAKES, 300 MILES, MAY 30

Maxwell—Henderson	6
Premier—Wilcox	7

DES MOINES 150-MILE RACE, JUNE 24

Maxwell—Henderson	2
Maxwell—Rickenbacher	3
Stutz—Cooper	5

SIOUX CITY 10-MILE RACE, JULY 8

Premier—Wilcox	4

SIOUX CITY 20-MILE RACE, JULY 8

Premier—Wilcox	1

SIOUX CITY 50-MILE RACE, JULY 8

Premier—Wilcox	1

OMAHA 50-MILE RACE, JULY 15

Maxwell—Rickenbacher	2
Maxwell—Henderson	3

OMAHA 150-MILE RACE, JULY 15

Maxwell—Henderson	4

TACOMA MONTAMARATHON, 300 MILES, AUG. 5.

Maxwell—Rickenbacher	1
Maxwell—Henderson	5

CINCINNATI DERBY, 300 MILES, SEPT. 4.

Peugeot—Aitken	1

INDIANAPOLIS 20-MILE RACE, SEPT. 9

Peugeot—Aitken	1
Premier—Wilcox	2

INDIANAPOLIS 50-MILE RACE, SEPT. 9

Peugeot—Aitken	1
Premier—Lewis	5

INDIANAPOLIS 100-MILE RACE, SEPT. 9

Peugeot—Aitken	1
Premier—Lewis	5
Maxwell—Henderson	7

ASTOR CUP RACE, 250 MILES, NEW YORK, SEPT. 30

Peugeot—Aitken	1
Maxwell—Rickenbacher	2

GRAND AMERICAN, 250 MILES, CHICAGO, OCT. 14

Peugeot—Resta	1
Peugeot—Aitken	2
Maxwell—Rickenbacher	3
Premier—Lewis	4
Maxwell—Henderson	5
Premier—Galvin	6

HARKNESS TROPHY RACE, 100 MILES, NEW YORK

Peugeot—Aitken	1
Premier—Galvin	2
Peugeot—Wilcox	3
Maxwell—Henderson	4

VANDERBILT CUP RACE, 294 MILES, SANTA MONICA, CAL., NOV. 16

Peugeot—Resta	1
Stutz—Cooper	2

GRAND PRIZE RACE, 403 MILES, SANTA MONICA, CAL., NOV. 18

Peugeot—Aitken-Wilcox	1
Stutz—Cooper	2

ASCOT DERBY, 150 MILES, LOS ANGELES, CAL., NOV. 30

Stutz—Cooper	2

UNIVERSAL TROPHY RACE, 112 MILES, UNIONTOWN, PA.

Premier—Lewis	2

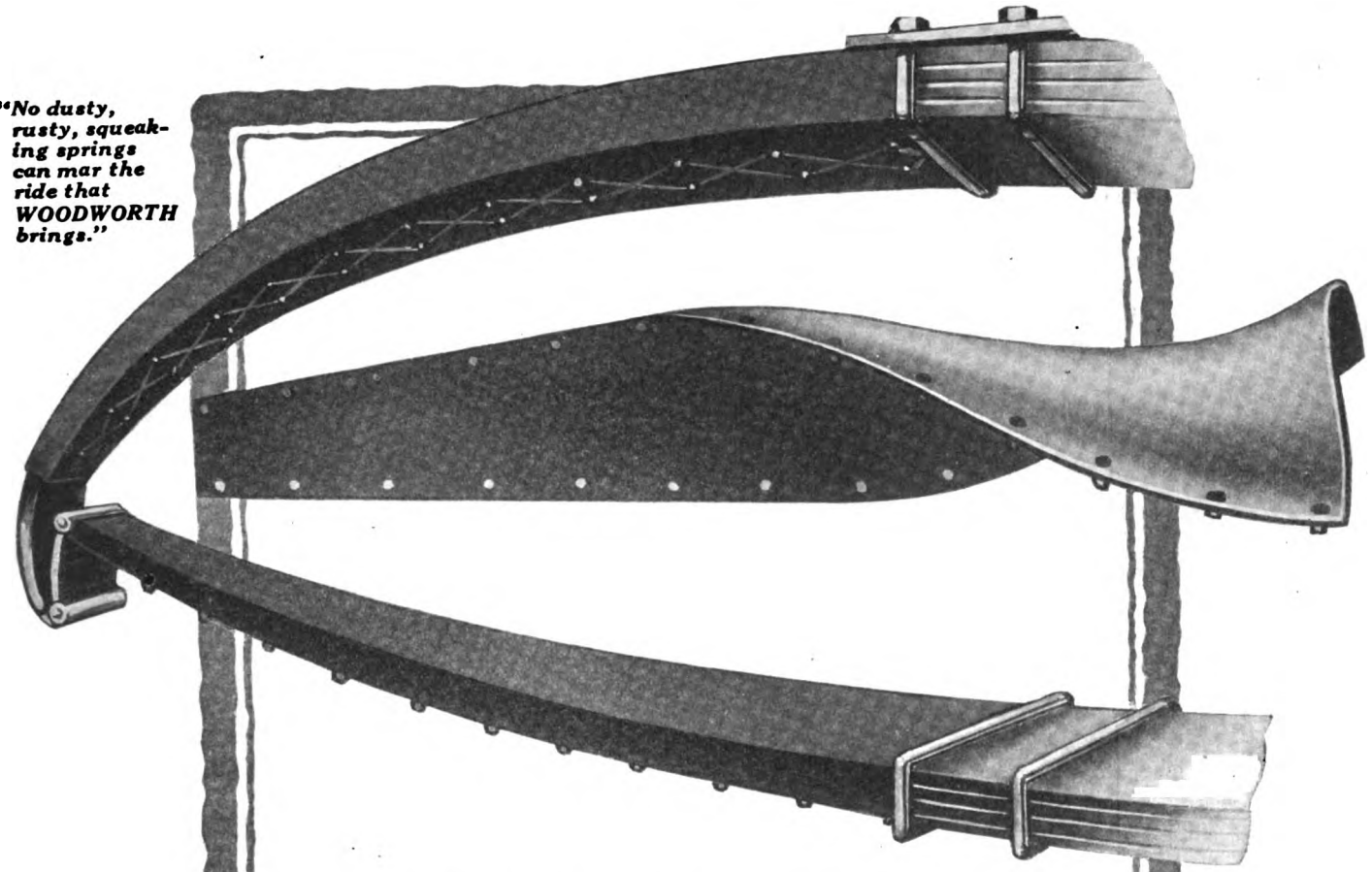
This showing proves that the FEDDERS is still in its place as the foremost American Radiator

FEDDERS MANUFACTURING CO., INC.

BUFFALO, N. Y.

Digitized by Google

"No dusty, rusty, squeaking springs can mar the ride that WOODWORTH brings."



WOODWORTH
Spring Cover & Lubricator

A LEATHER COVER (AS SHOWN) that laces over the spring, entirely enclosing it and protecting it from dust and moisture.

LINED WITH OIL-SATURATED FELT WICKING, it eliminates rust and keeps the spring properly lubricated and in good working order.

CONTAINS SUFFICIENT OIL TO LAST a year without renewal.

EASILY AND QUICKLY PUT ON, these covers present a very neat, pleasing appearance.

WILL FIT ANY MAKE OF CAR.

NOT ONLY MAKE A CAR MORE COMFORTABLE to ride in, but prevent its becoming a noisy, humiliating rattletrap.

COST BUT LITTLE and save you money and discomfort.

ASK YOUR JOBBER.

PRICES

Sizes	Genuine Leather	Imitation Leather
12 in. or less	$0.65	$0.30
12-14 in.	.90	.40
14-16 in.	1.10	.50
16-18 in.	1.30	.60
18-20 in.	1.50	.70
20-22 in.	1.70	.80
22-24 in.	1.90	.90
Over 24 in.	2.00	1.00

WOODWORTH MANUFACTURING CORPORATION

NIAGARA FALLS, NEW YORK

CANADIAN FACTORY, NIAGARA FALLS, ONTARIO

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A Big Profitable Field for DEALERS

$ $ $

A Money-Maker Every Month of the Year—



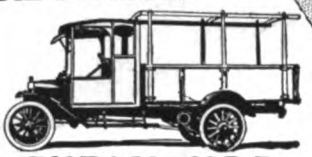
FARM



EXPRESS



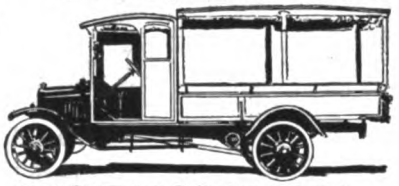
OIL DEALERS



FURNITURE



CONTRACTOR



HARDWARE



LUMBER

THERE are more live prospects for the Ford-Dearborn One-Ton Truck than for any other commercial car on the market. Grocers, farmers, contractors, lumbermen, expressmen, manufacturers, truck gardeners and scores of others are *real* prospects for the Ford-Dearborn.

You can sell the Ford-Dearborn to people who would not think of paying $1,500 for a truck (the price of the average one-ton truck). The Ford-Dearborn is actually far cheaper to operate than horse and wagon and many times more satisfactory and efficient.

The Ford-Dearborn Truck is a combination of the Ford chassis and the Dearborn Unit. It has all the economy, simplicity and efficiency of the Ford—and the strength of the Dearborn.

$350 and a Ford, New or Old, Makes a

FORD-DEARBORN One Ton Truck

90 per cent of the load is carried on the sturdy rear axle and heavy truck wheels. Full 9-foot loading space; any style body can be furnished. Wheels are of heavy artillery type with guaranteed hickory spokes and felloes; tires are solid rubber. Tread is standard (56 inches) same as Ford front wheels. Baldwin roller chains and Baldwin steel sprocket.

The Dearborn Unit is make complete in our own factory and is completely guaranteed in every detail. There is no other attachment like it. Any auto mechanic can attach it to Ford chassis in a few hours time.

Find out about the DEARBORN today. Write or wire for our Dealer's Proposition with complete information on the Dearborn Unit.

Dearborn Truck Company
1260-74 S. Campbell Ave. Chicago

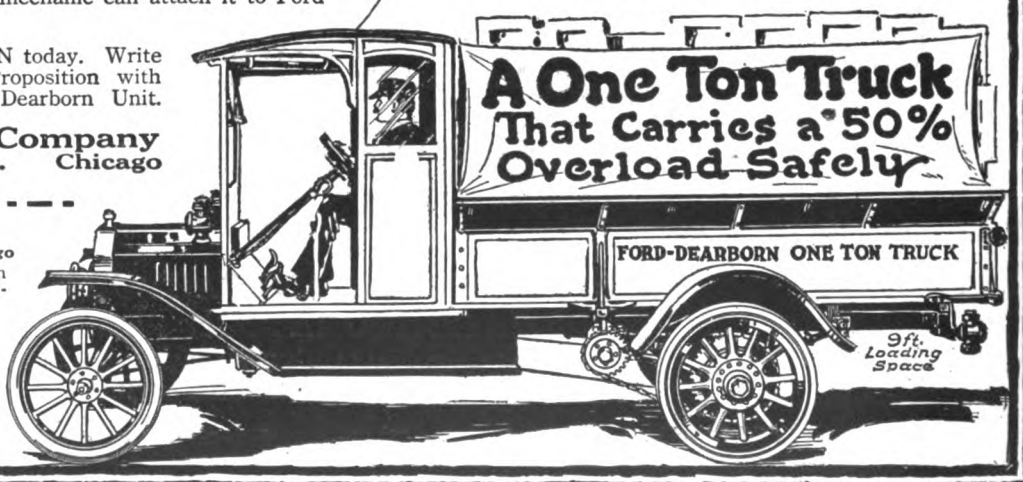
—--COUPON—-—-—

Dearborn Truck Co.,
1260-74 S. Campbell Ave., Chicago

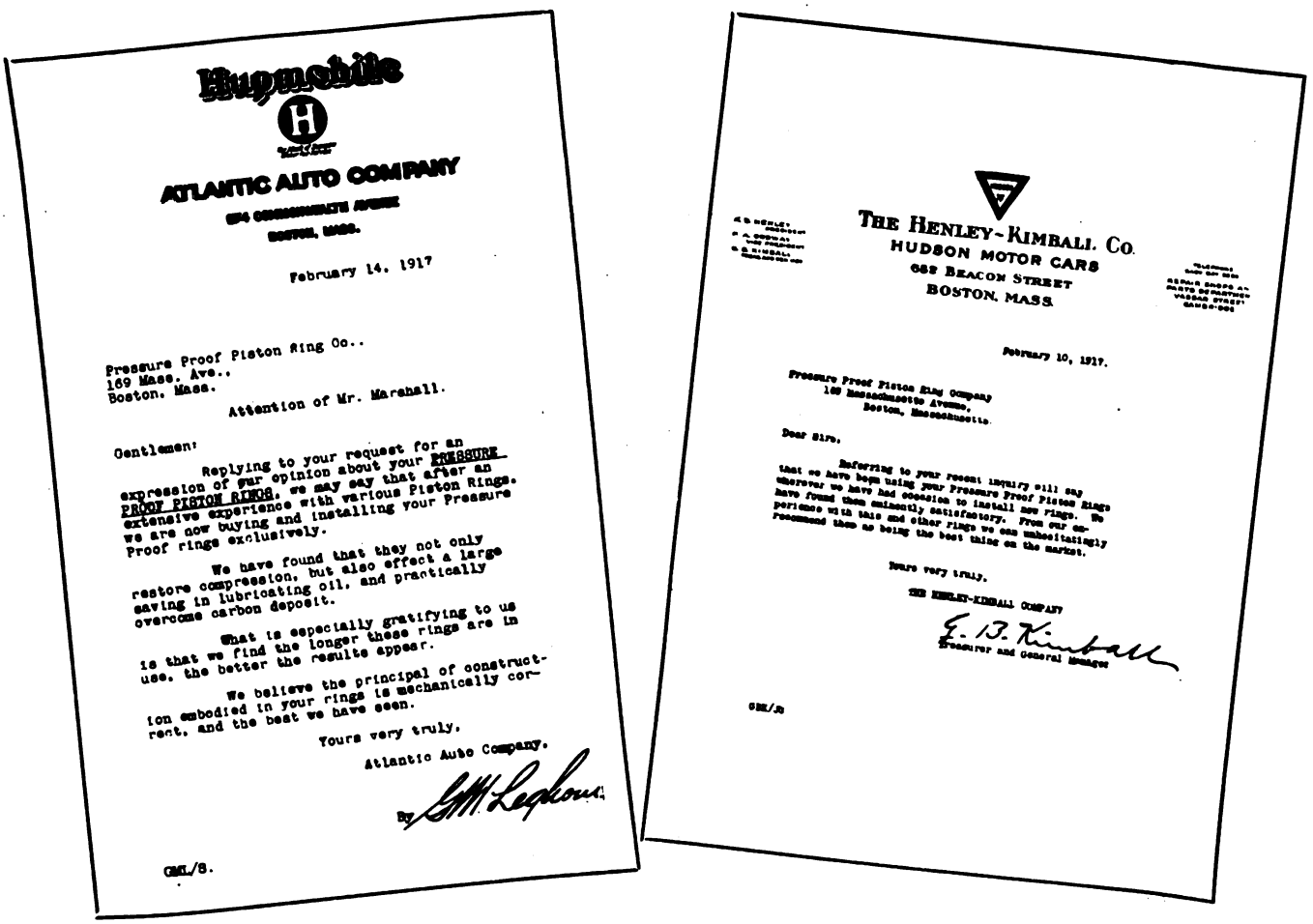
Send me your Dealer's Proposition and complete information on Dearborn Truck Unit.

Name.....

Address.....



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Hupmobile

ATLANTIC AUTO COMPANY
634 COMMONWEALTH AVENUE
BOSTON, MASS.

February 14, 1917

Pressure Proof Piston Ring Co..
169 Mass. Ave..
Boston, Mass.

Attention of Mr. Marshall.

Gentlemen:

Replying to your request for an expression of our opinion about your PRESSURE PROOF PISTON RINGS, we may say that after an extensive experience with various Piston Rings we are now buying and installing your Pressure Proof rings exclusively.

We have found that they not only restore compression, but also effect a large saving in lubricating oil, and practically overcome carbon deposit.

What is especially gratifying to us is that we find the longer these rings are in use, the better the results appear.

We believe the principal of construction embodied in your rings is mechanically correct, and the best we have seen.

Yours very truly,

Atlantic Auto Company.

By C.M. Leghorn.

CML/S.

THE HENLEY-KIMBALL CO.
HUDSON MOTOR CARS
682 BEACON STREET
BOSTON, MASS.

February 10, 1917.

Pressure Proof Piston Ring Company
169 Massachusetts Avenue,
Boston, Massachusetts.

Dear Sirs,

Referring to your recent inquiry will say that we have been using your Pressure Proof Piston Rings wherever we have had occasion to install new rings. We have found them eminently satisfactory. From our experience with this and other rings we can unhesitatingly recommend them as being the best thing on the market.

Yours very truly,

THE HENLEY-KIMBALL COMPANY

E. B. Kimball
Treasurer and General Manager

EBK/R

WHAT BETTER PROOF

of the remarkable superiority of

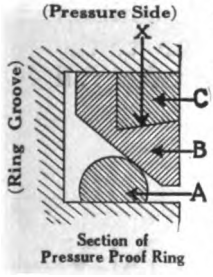
Pressure Proof  Piston Rings?

Pat. Mar. 2, '15; Feb. 29, '16

DEALERS

This ring (which under all conditions insures perfect compression, freedom from carbon, multiplied power, lower cost for oil and fuel and longer life than any other ring) should be part of *your* stock. We stand ready to co-operate in every possible way with progressive and responsible dealers, by means of national advertising, dealer helps, circulars, etc. If you are building business on the sound basis of satisfaction to your customers, you will want this super-ring. "New Facts About Piston Rings" will tell you why. It is yours upon request.

Write for Special Dealers' Proposition, Guarantee, Price List, etc.



Section of Pressure Proof Ring

NOTE HOW THE PRESSURE PROOF RING OPERATES

The secret of the superiority of Pressure Proof Rings lies in the expander or spring (A). This expander—which does not come into contact with the cylinder wall—is made of durable tempered steel. It acts on the bevel of ring (B), pressing it outward against the cylinder wall and upward against the pressure side of ring groove. Thus, the ring is held tightly against both the top and bottom of the ring groove, allowing no reciprocation and preventing all leakage of oil or gas. Rings B and C interlock in such a manner that all openings are effectively sealed.

Pressure Proof Rings Assure You

the best piston ring on the market—the maximum in sales—the minimum in complaints—and an opportunity to "cash in" on our national advertising. Pressure Proof Piston rings have proven exceptionally big business-getters. They will do the same for you.

See the Pressure Proof Ring at the Boston Show. Booth 447—Department E

Pressure Proof Piston Ring Company

171 Massachusetts Ave.
BOSTON, MASS.

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CONNECTICUT AUTOMATIC IGNITION



More Than Human

HERE is a switch which not only knows when to turn itself off, but does so automatically. In this respect it seems to have human intelligence.

Not only does it know when to turn itself off—not only does it do so automatically—but it never forgets. In this respect it is more than human.

This is the Automatic Switch—the switch which makes the unqualified ignition efficiency possible—the switch which affords absolute and unfailing protection to the battery—the switch which enables Connecticut Automatic Ignition to take full advantage of its possibilities.

The device shown here marks this switch and identifies Connecticut Automatic Ignition. This is "The Device of Efficiency."

CONNECTICUT TELEPHONE & ELECTRIC COMPANY

Meriden Conn.

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NOW He Admits That He Certainly Does Need a

Badger Jack

HAVE you ever tried to jack up a car on a muddy road? Most of the time you push the jack into the mud instead of raising your car. That's because the average tool-box jack hasn't a base to stand on. And that's one of the reasons why Badger Jack is out to put junk jacks out of business.



When other jacks sink in the mud, topple over, and slip and let your car down with a bang, that's when you'll find how much Badger Jack is worth to you. But it's a poor time to find this out when you're stuck in the mud seven miles from the nearest garage. You ought to know by now that the average tool-box jack isn't worth its weight in scrap.

When you have a Badger Jack in the tool box you *know* you're safe. You know that once your car's up, whether it's in mud or on a hill, it's *up to stay*.

We guarantee Badger Jack because we *know* he'll never fall down on the job. Before he leaves home he's put in a testing machine that gives him four times the work-out he'll ever get in later use. Write today for our book about the Badger Jack family. It's really worth reading and it's free.

Walker Manufacturing Company

430 Wisconsin Street, Racine, Wis.

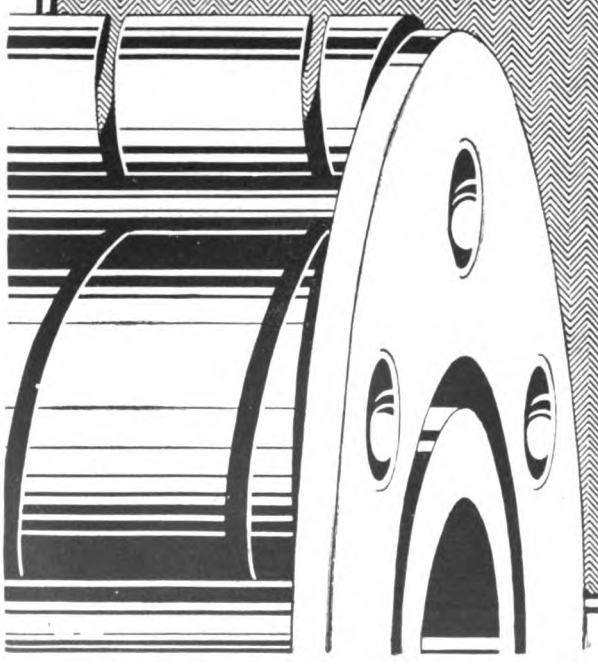
DEALERS: Motor car owners everywhere are being convinced of Badger Jack superiorities. Don't miss this chance to add to your sales. Cash in on our advertising. Write to your jobber today. If he can't supply you, write direct to us.

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Motor Car Perfection

will come when every working part gives the same Care-free Service you now find in

HYATT QUIET BEARINGS



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Tonford
TRADE MARK

Quality Approved by Chalmers

The Famous Chalmers Trade Mark

CHALMERS · MOTOR · CO
Detroit, Mich., U.S.A.

Quality First
56" & 64 in. Treads

The Chalmers Motor Company showed its approval of and confidence in the quality of the Tonford truck unit by purchasing one for its Production Department.

This truck has now been in daily use nine months, hauling materials of various kinds. It has demonstrated its invincible superiority over heavier and costlier trucks. It has shown greater flexibility, greater ease of handling and surprisingly low cost of operation, and has done everything and anything asked of it, and has cost nothing for repairs.

Chalmers' judgment selected the Tonford. Chalmers' experience proved Chalmers' judgment right.

The Tonford will work just as profitably for you. Give it the chance.

Hundreds of manufacturers and merchants in every line are finding that the Tonford truck unit, built by the Detroit Truck Company, is the best designed and most completely satisfactory solution of the one-ton truck problem.

The Tonford unit can be attached to any Ford chassis, old or new. It gives a loading space of from 9 to 11 feet back of driver's seat. The Tonford Truck Unit costs only $325.

Write at once for literature describing it.

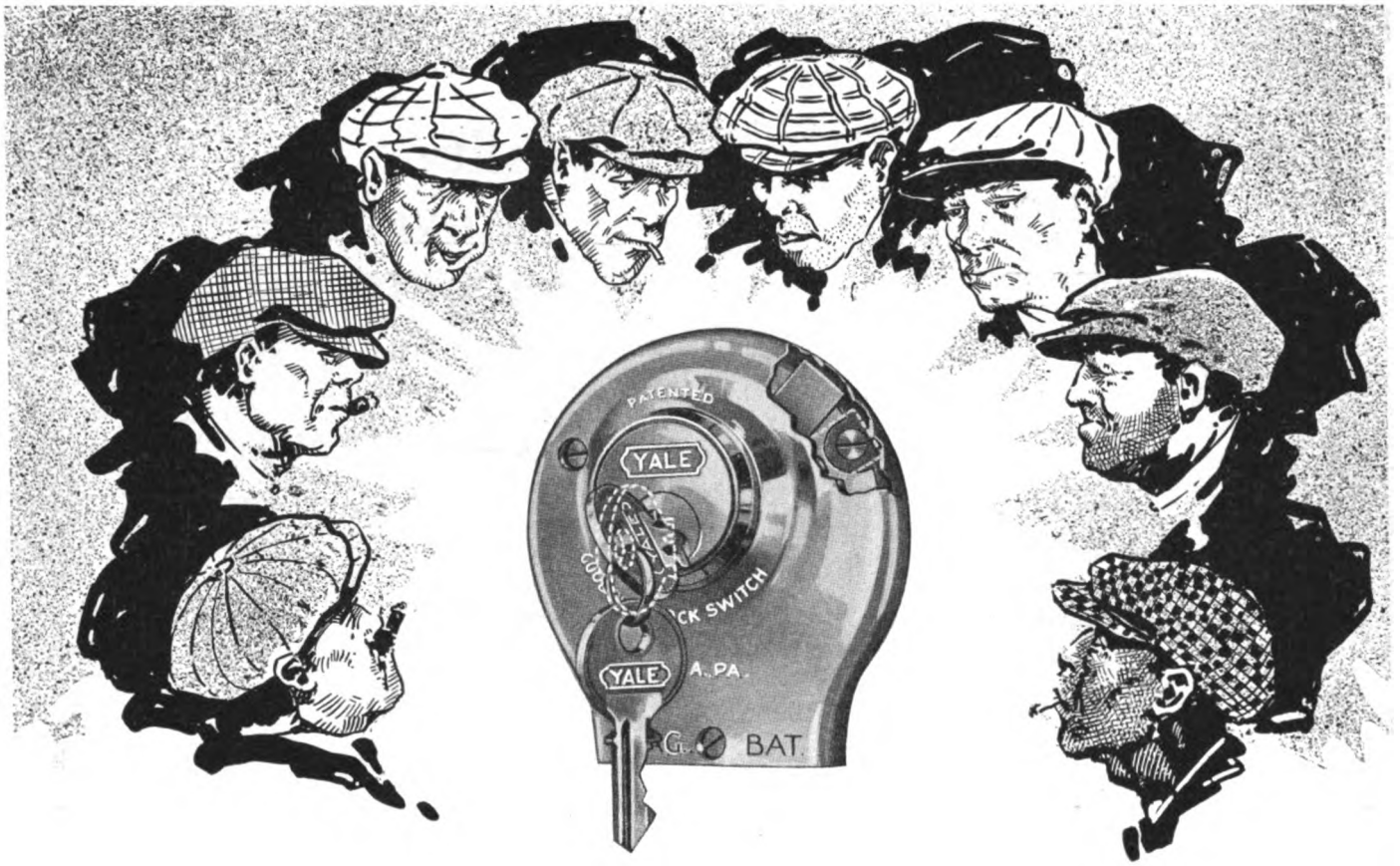
Detroit Truck Company
Detroit, Michigan

DEALERS—The Tonford gives you the argument of superior service based on superior quality at a right price. Quick sales and big sales opportunity suggest quick action on your part. Write today.

$325
F.O.B. DETROIT.



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This *Stops* the Ford Thief

Theft insurance *doesn't* stop Ford thieves—but the Goodrich Yale Lock and Switch *does.* . . Theft insurance *doesn't* prevent joy riders from racking your car to pieces and then abandoning it—but the Goodrich Yale Lock and Switch *does.* . . Theft insurance *doesn't* keep your business appointments and your social engagements—but the Goodrich Yale Lock and Switch *does.*

Because

—it is the only positive protection against highway pirates and joyriding crooks.

—it is unlockable, unscrewable and unpickable.

—the Yale lock key cannot be duplicated—yours is the master key and there's no other like it.

—one turn of that key locks the ignition and covers up the screw heads all in one motion.

Dealers: **The many provable advantages of the Goodrich Yale Lock and Switch make it the fastest and most profitable seller in the Ford accessory field. Write or wire today for terms.**

Because

—the thief's tools are rendered useless—the lock cannot be removed.

—metal shutters sliding over the screws which hold the Goodrich Yale Lock and Switch in place are the *Nemesis of the Ford thief.*

—only the owner of the key can remove this lock—anyone can install it in two minutes.

UNPROTECTED FORDS ENCOURAGE THEFTS

All the Mayor's men and all the cops' horses cannot do the work of this lock—it is the only safe and sane way to protect your car. All fear and thought of theft is cast to the four winds when your Ford is equipped with a Goodrich Yale Lock and Switch, internationally *advertised,* internationally *demanded, sold the world over.*

$3.25 Price Complete

$4.50 in Canada

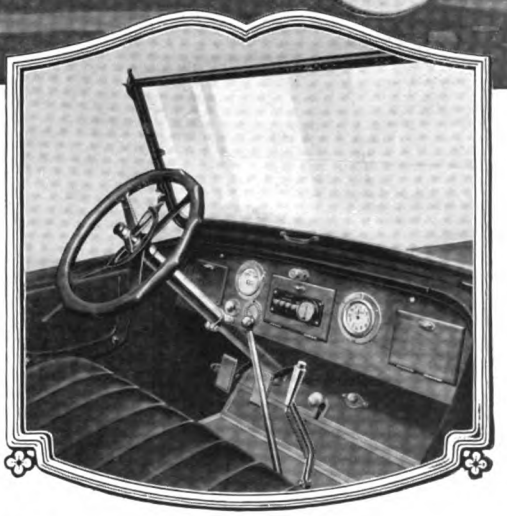
Goodrich-Lenhart Mfg. Co.

1118 Widener Building, Philadelphia

When writing advertisers please mention Motor World—It identifies you

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What FLEXIBILITY *really means*

EVERY car has its story of flexibility of control. Every driver tells of what he can do with his car "in high." What can be done in high gear depends a good deal upon the driver.

Flexibility really means what the car will do for *any* driver.

NEW SERIES **Oldsmobile** NINETEENTH YEAR

has the great sales feature of Flexibility to such a degree that you can leave it to the prospective customer to learn its meaning by actual driving.

This enables him to compare it with all the cars he has ever driven. It is a "sales point" so strong that the customer actually sells himself.

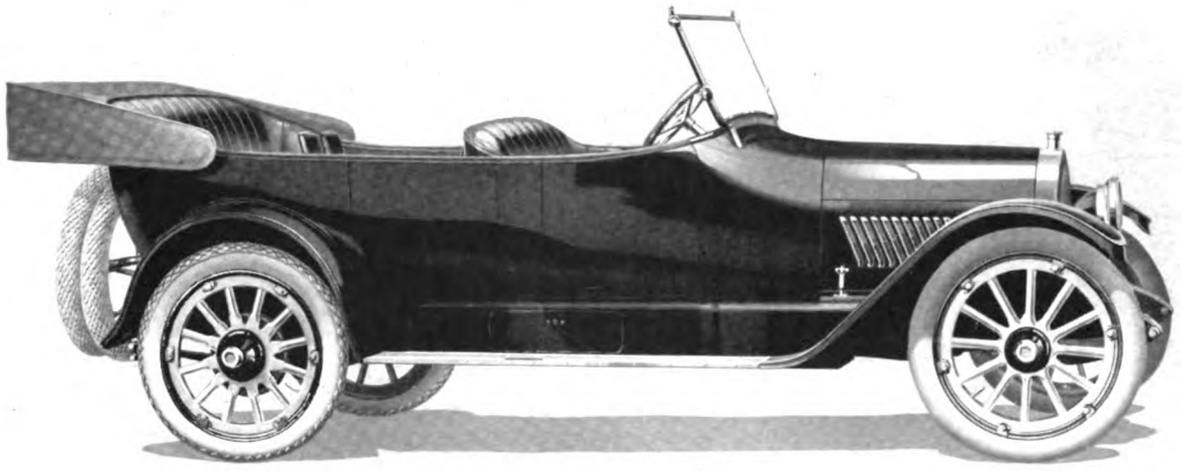
The eight-cylinder, high speed motor, with light reciprocating parts and a car of light weight are the reasons for this unusual "pick-up" and acceleration.

More dealers will be needed to take care of the great demand for the New Series Oldsmobile. Advance orders indicate a record breaking year.

Responsible dealers in open territory who will feature the Oldsmobile as a leader will be considered. Many applications have already been received, so that it will be worth while to act promptly.

OLDS MOTOR WORKS
Lansing, Michigan

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NEW SERIES **Oldsmobile** NINETEENTH YEAR

Details of the New Series

WHEEL BASE—120 inches, with unusually ample body, due to short, compact motor.

MOTOR—Eight cylinder, V-type, high speed motor with balanced crank shaft, light weight, drop forged connecting rods, and nine-ounce aluminum alloy pistons, reducing internal resistance, vibration, and bearing pressure to a minimum. L-head with inclined valves. Cylinders cast four en-bloc with adjoining half of crank case, only two castings, bearings in left-hand block—a patented feature. Three-point suspension. Motor develops 50 horse power brake test.

LUBRICATION—Force feed by gear pump direct to bearings. Pressure indicated by oil gauge on dash.

ELECTRIC SYSTEM—Oldsmobile-Delco lighting, starting, and ignition.

SPARK ADVANCE—Automatic.

CABURETOR—Automatic compensating type, minus springs, water jacketed.

GASOLINE SYSTEM—Vacuum feed type, gasoline tank in rear.

TRANSMISSION—Unit with motor, selective type, center control. Three speeds forward and reverse. Hardened steel gears, transmission shaft mounted on ball and roller bearings.

CLUTCH—Leather faced, cone type.

DRIVE—Hotchkiss type, through rear springs. Tubular drive shaft with two large universal joints.

REAR AXLE—Full floating, spiral bevel type.

BRAKES—Service brakes, external contracting; emergency brakes, internal expanding. Brakes adjustable by thumb nut.

SPRINGS—Front, semi-elliptic; rear, three-quarter elliptic, underslung.

UPHOLSTERY—Extra quality, long grain, bright finish black leather, box pleated, with no buttons to gather dust and dirt.

DASH—Walnut, with nickel finished instruments, mounted flush—oil pressure gauge, speedometer, eight-day clock, ammeter, and lighting and ignition switches.

LAMPS—Double bulb headlights, tail light, dash light, tonneau light.

TIRES—33 x 4 on all but 7-passenger which carries 34 x 4. Non-skid on rear wheels throughout.

The New Series Consists of

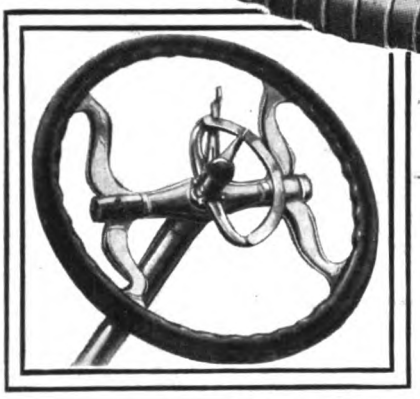
Seven Passenger Touring Car	Sedan
Five Passenger Touring Car	Cabriolet
Club Roadster	Convertible Roadster

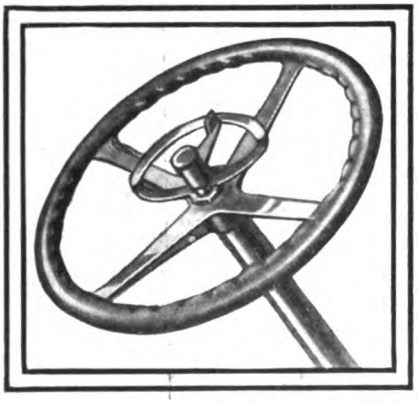
Write for particulars of dealers' arrangement

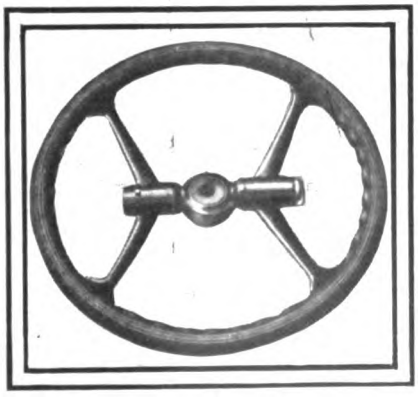
OLDS MOTOR WORKS
Lansing, Michigan

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POVASCO WHEELS Are Available for Every Car and Every Purpose

For the car owner who wants simply an indestructible wheel whose finish can always be kept beautiful, the plain POVASCO with its moulded composition supplies his simple demand.

For the car owner who is weary of the discomfort of a cramped position in the driver's seat, and who is looking for some adequate solution of this trouble, the POVASCO with the tilting arrangement satisfies his demand in a sure and sufficient manner. Tilting forward or back, as the need of the car compels, in a plane parallel to the steering column, any driver, no matter what may be the proportions of his girth, can get in and out of his car with positive comfort.

For those drivers who want to be sure of the pleasures of motoring all the months of the year—to whom the beauties of driving in the evenings of early spring and late fall make appeal, as well as those who want to drive all winter, the POVASCO with the warm-hand feature is absolutely essential, and will keep him comfortably warm through the electric heat that comes from opposite sides of the steering wheel while he is driving.

The POVASCO wheel with the warm hand device positively keeps the hands at a comfortable temperature, and when the hands are warm the body is warm.

The POVASCO DE LUXE model combines all of the features—beauty, indestructibility, tilting and warm hand—in one splendid model for those motorists who want all of the comforts possible to be secured while driving. It has made a tremendous appeal wherever it has been shown.

Owners of Ford cars can have the benefit of POVASCO features plain, tilting, and light-dimming.

The prices of all are moderate—so moderate that no car owner who is looking for comfort will hesitate to buy them.

Therefore, POVASCO STEERING WHEELS present a splendid opportunity for distributors, and for those men of business energy and automobile trade knowledge who will get behind it in a substantial, pushing way, we have a splendid distributors' proposition.

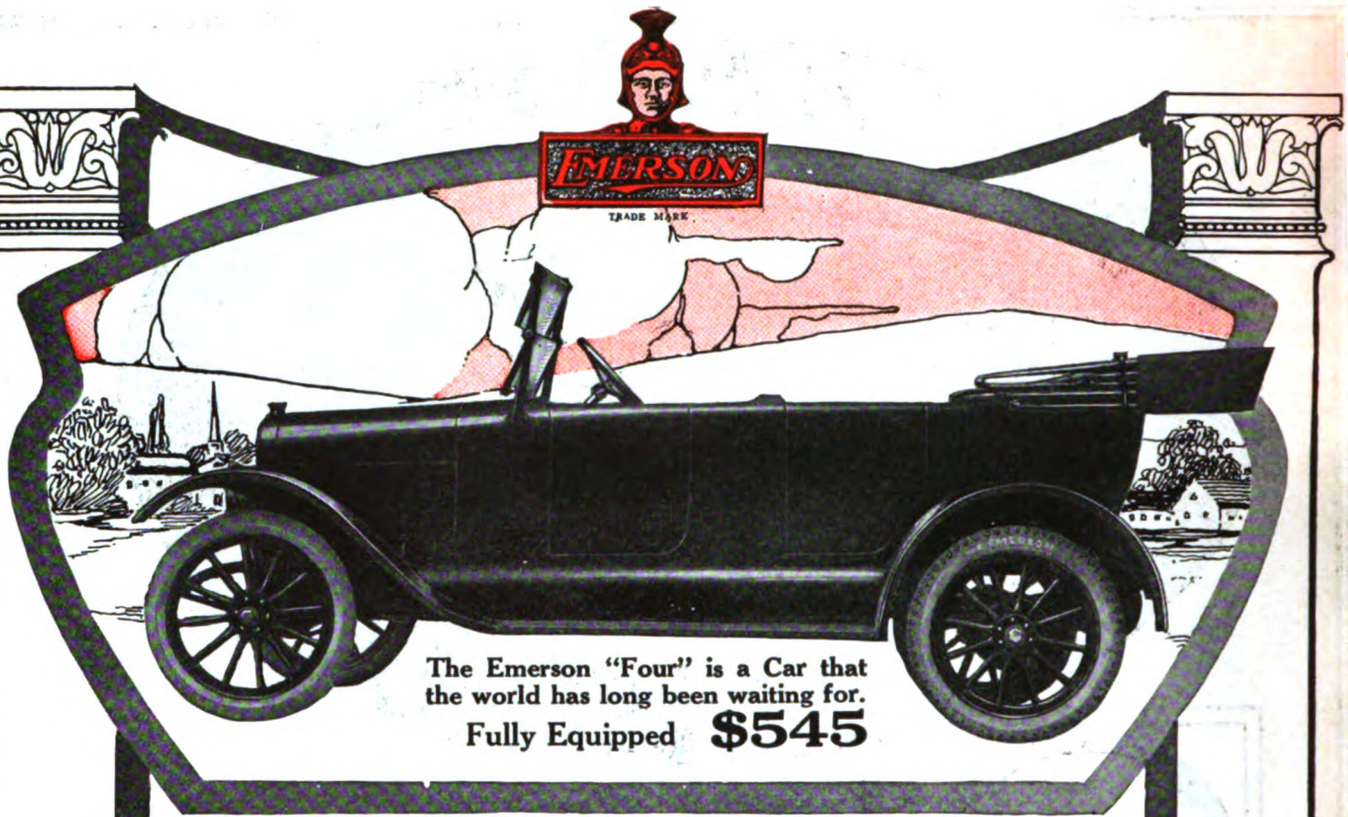
CAR OWNERS AND DEALERS: Write for catalog now.

DISTRIBUTORS: Ask us how we can make profits for you.

POUVAILSMITH CORPORATION

POUGHKEEPSIE, NEW YORK

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The Emerson "Four" is a Car that the world has long been waiting for.

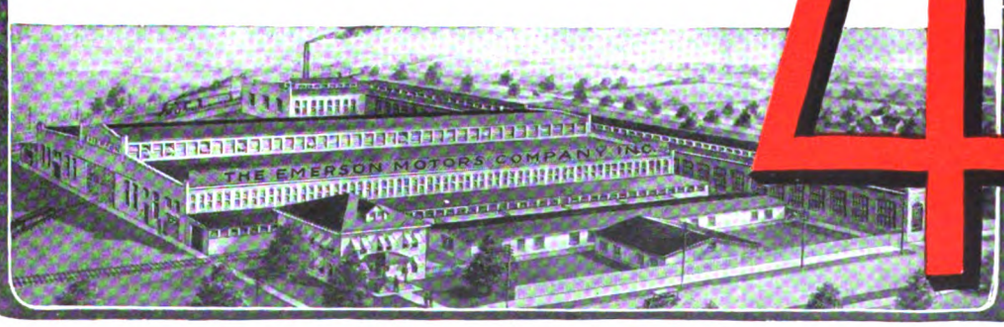
Fully Equipped **$545**

The EMERSON 4

The Lowest-Priced 5-Passenger 110-inch Wheelbase Car in the World.

To Mr. Dealer—Everywhere:

In these pages next week the EMERSON MOTORS COMPANY, Inc., Kingston, N. Y., will make an announcement of great importance.



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Great Oaks From Little Acorns Grow



OUR NEW HOME

For Dealers Only!

Service plus Bargains

"The Winning Team"

All the automobile Accessory trade is talking about the wonderful, rapid growth of the SERVICE MOTOR SUPPLY CO. of Chicago. They call us *"The fastest growing automobile accessory jobbing house in America"*—and they keep on sending us their orders.

We were the first to inaugurate, and practice, on a national scale, our system of selling to merchants from a complete monthly catalog. Our monthly catalog "SNAPS" is known by 100,000 accessory dealers from coast to coast as the ***"National Bargain Directory of Auto Supplies."*** Our system enables us to place before the accessory dealers of this country a new, fresh assortment of merchandise every 30 days.



Dealers—Send For "SNAPS"!

"SNAPS" is complete, containing over 1000 items, and keeps the dealer in touch with the ***latest*** and the ***best*** that the market affords. Within a few days from the time a new accessory appears on the market—our dealers see it listed and illustrated in "SNAPS"—and at ***surprisingly low prices!*** We do not have to anticipate a rise in prices when we quote you, and therefore, our dealers get the advantage of the ***lowest prices current*** at any time.

We ***buy*** for cash and we ***sell*** for cash—and ***we buy in enormous quantities!*** We are ***preferred*** buyers—we get the ***first*** chance at the ***best.*** Therefore we are able, and do give you, the benefit of the ***lowest prices*** at which ***our quality*** of goods can be bought. We are selling millions of dollars worth of Auto Supplies and Hardware per year—therefore we can afford to take a very small profit on each item—the big volume makes this possible and wins you this fine saving.

Our business was founded with a small capital but a big idea—the idea of ***SERVICE.*** We have taken the meaning of "SERVICE" in its broadest sense. And each day, each month, we have found a new and still broader meaning, so that now we understand that "SERVICE" means ***all things that go to make life easier and business more profitable for the dealers we serve!***

We guarantee to ship 90% of our orders within 6 hours from receipt. Only orders for unusual, special items are occasionally held longer. ***We guarantee to return your money*** to you any time you ask for it—and it makes no difference whether you want it back for a good reason—or for no reason at all—***you get it, quick.***



OUR OLD HOME

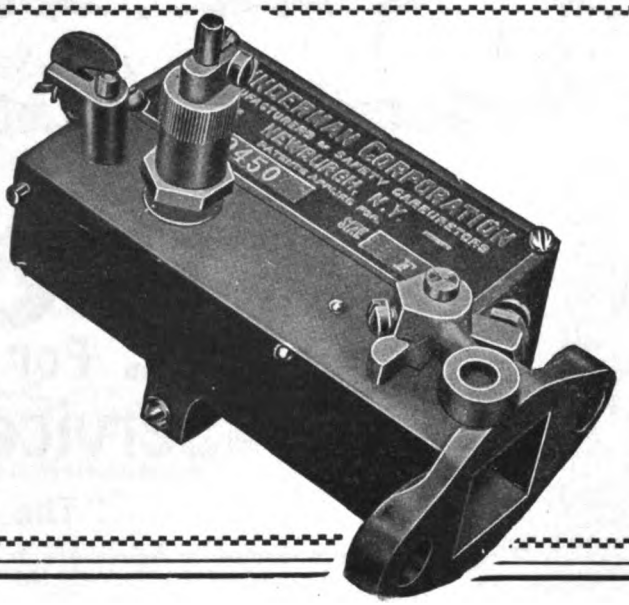
WE SELL WHOLESALE ONLY!!

Only ***qualified dealers and garage men*** who buy to resell can buy goods from us. No consumer can buy goods from us—our well organized "Turn Down" Department takes good care of that. We refuse to compete against our customers—this ***absolutely protects the dealer.*** Thousands of pleased dealers now call us their "Chicago Partner"—why don't ***you,*** too, send for a ***free*** copy of "SNAPS" the "National Bargain Directory of Auto Supplies?" Write on your letterhead so that we may know you are a dealer and entitled to get "SNAPS."

LET US BE *YOUR* CHICAGO PARTNER

SERVICE MOTOR SUPPLY Co. 1523-25-27-29-31 Michigan Blvd CHICAGO, U.S.A.

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Efficient Break-Up

Fundamental to all of the Sunderman proved superiorities is its principle of breaking up the gasoline globules.

Exactly as a furnace will not work efficiently when the lumps of coal are too large, neither will your motor's combustion chamber fire its charge at highest efficiency when the gasoline globules are too large.

They must be broken up—smaller coal for your furnace, finer particles of gasoline for your motor. The

$5 F. O. B. Newburgh

SUNDERMAN

Vacuum Carburetor

$6.50 for other than Ford or Metz

$5 F. O. B. Newburgh

does this supremely, producing a mixture that extracts from gasoline the last atom of energy that it contains. More complete combustion ensues—and therefore in relation to other carburetors the Sunderman needs less gasoline to secure a given power impulse. With as much gasoline as other carburetors need to function, the Sunderman gives MORE power—so much more that on a badly fouled motor tested at our laboratory at Detroit the dynamometer showed 47 brake horsepower, when the motor in its original fine condition had developed only 42 brake horsepower at the factory in which it was made.

We'll give you the evidence of the above if you ask us for it.

But economy is not the only advantage of our proved principle. We make the following simple claims, and ask you to let the carburetor itself prove them:

INCREASES MILEAGE

More Power, Easier Starting, Greater Flexibility, Safety, Improved Acceleration, Decreases Gearshifting, Idles without Loading, Saves Money with any grade of fuel.

Dealers: Write at once to get our 1917 proposition. Good territory is still available.

SUNDERMAN CORPORATION

9 Chambers Street — Newburgh, N. Y.

Western Sales Offices: 403 Kresge Bldg., Detroit

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It Works This Way

A SPECIAL BODY allows the dealer to show his car in "PARTY CLOTHES." It lets people know that they can get SAXON QUALITY and SERVICE with a body style that is distinctive. It makes that dealer stand out prominently from the other dealers. It classes him as a live, wide-awake dealer—one just a little ahead instead of a little behind.

YOU ADMIT YOU NEED PUBLICITY for yourself as well as the car. Let's get it. Show people that you are selling a car that is worth putting SPECIAL BODIES on. Let them think of the car not only as a common stock model but as a car with APPEARANCE—a car that CAN BE.

IT IS THE EXTRA BUYER that you make your profit on. It is this year's increase that you build next year's increase with. This is the logical way to add to your profits and prospects—a way that we ourselves have used with great success—a way that the biggest dealers in the country have built their reputations.

THE FIRST THING to decide is whether you are working FOR—or AGAINST—yourself. Why not wake up and be a little sensational. Advertise yourself just a little and watch the results.

YOU APPEAL TO YOUNG PEOPLE. The ones who buy cars for the sport they get out of it. The ones that want to make an impression on the crowd they travel with—and will spend money to do it. In this way you interest a lot of people who would not come near a stock model Saxon. They get to feel that the SAXON is the car that gives them just what they want—a car that is just a little ahead of the times.

EVEN YOUR EVERYDAY PROSPECTS who are sure to buy a stock model SAXON, will buy more quickly if they can be made to feel that they can get a special body whenever they want it—from the same dealer with but very little trouble and circumstance. Cater to your prospect's eye and when you have pleased that member, your proposition is more than half sold.

ALL THIS HELPS BUSINESS MORE THAN YOU WOULD THINK. To see these good-looking, brightly colored cars on the street and displayed in your SHOW WINDOW, brings your name and business forcefully before the minds of many people. It creates interest where previously there was little or none—it DEMANDS attention.

IF YOU ARE ABLE TO GRASP THIS IDEA and think it worth money to you—don't wait until next week. WRITE TODAY for a selection of photographs or literature showing our several styles of original raceabout designs—good looking VICTORIA TOPS for the "CHUBBY" ROADSTER and TOURING CAR, and a LIGHT DELIVERY BODY for the FOUR CYLINDER. If they please you, let us know about it in the form of an order. They already have been O. K.'ed by hundreds of dealers from all over the UNITED STATES during the NEW YORK and CHICAGO SHOWS.

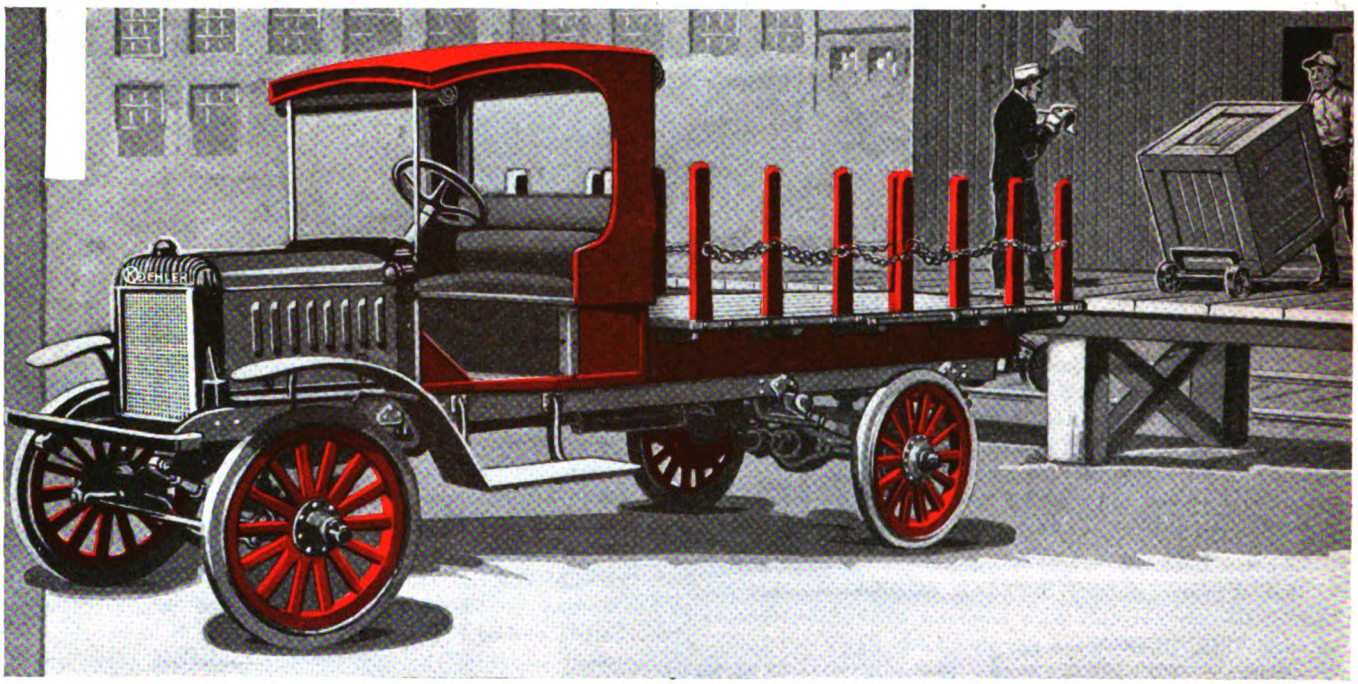
WE MAKE THESE BODIES TO FIT SEVERAL OTHER WELL KNOWN MAKES OF CARS



"SAXON SIX"
Closed Type

Charles E. Schutte
Penn Auto Co., Lancaster, Pa.

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Pleasure Car Dealers—

Let's get down to cases!

The last ten years have been big ones. Some of you have made money—built up big establishments—won enviable reputations.

There are 35,000 of you in the United States. You have sold more cars than the country could afford.

So much for the past.

Is your ear to the ground regarding what is going on in upper circles of the industry? There are unmistakable evidences of retrenchment. Big groups of part-makers and assemblers are consolidating. Extravagant methods are being cut out. The halcyon, wild-cat days are about over.

Now, suppose the manufacturer of your car should join a consolidation. What would become of your agency? Suppose he should be forced out of business because of inability to buy parts (many manufacturers face this contingency at the present moment). Suppose hard times should come and fewer people should be able to indulge in the extravagance of a pleasure car. What, then, would become of your pleasure car business? Who would pay your heavy overhead?



KOEHLER

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KOEHLER

ONE TON TRUCK

The truth is that the pleasure car business is down to hard pan right now. 75% of dealers are not making money; many are losing money.

Now, consider the power truck as a field for future business. The horse is passing. Even a peddler knows that the horse is an extravagance. In three years every intelligent merchant and manufacturer will be operating trucks. That will mean millions of sales. Today there are about 160,000 trucks in use and only 8,000 truck dealers. Remember there are 35,000 pleasure car dealers.

You pleasure car dealers have exactly the opportunity to get in on the ground floor in the power truck industry that was seized upon by the most far-sighted of you some dozen years ago in your own field with such notable success.

This is the reason:

60% of power trucks are sold today direct by the manufacturers. Do you want that to continue? Some dealers wonder if their salesmen can sell trucks. Of course, they can. Ask any Koehler agent. Hundreds of pleasure car dealers are winning big success with the Koehler. A man who knows enough about mechanics to sell pleasure cars can sell trucks. What difference does it make whether an express body or limousine body is mounted on the chassis? The mechanism is the same in principle. A power truck is nothing but an express wagon with a motor instead of horses. Merchants already know they want power trucks. A mere order-taker could sell them. A live wire can get rich selling them.

Now for the Koehler One-Ton Truck. From stem to stern the Koehler is built for trucking. It's not a converted pleasure car. It's as rugged as a mule, as tireless as an ox and has the brutal power of 34 percherons. A better truck couldn't be made at any price.

And it's the lowest priced one-ton truck of proved reliability on the market.

Any merchant in your territory can afford it and can halve delivery costs by operating it.

Now is the time to seize this great opportunity to secure the Koehler agency and start right in the money-making truck business.

Looked at from every angle, the Koehler is the most promising proposition from a dealer's standpoint, you can find. It will take over half your pleasure car overhead expense. It will insure the future of your business.

Write for details.

Overhead Valves

Internal Gear Drive



BRIEF SPECIFICATIONS—

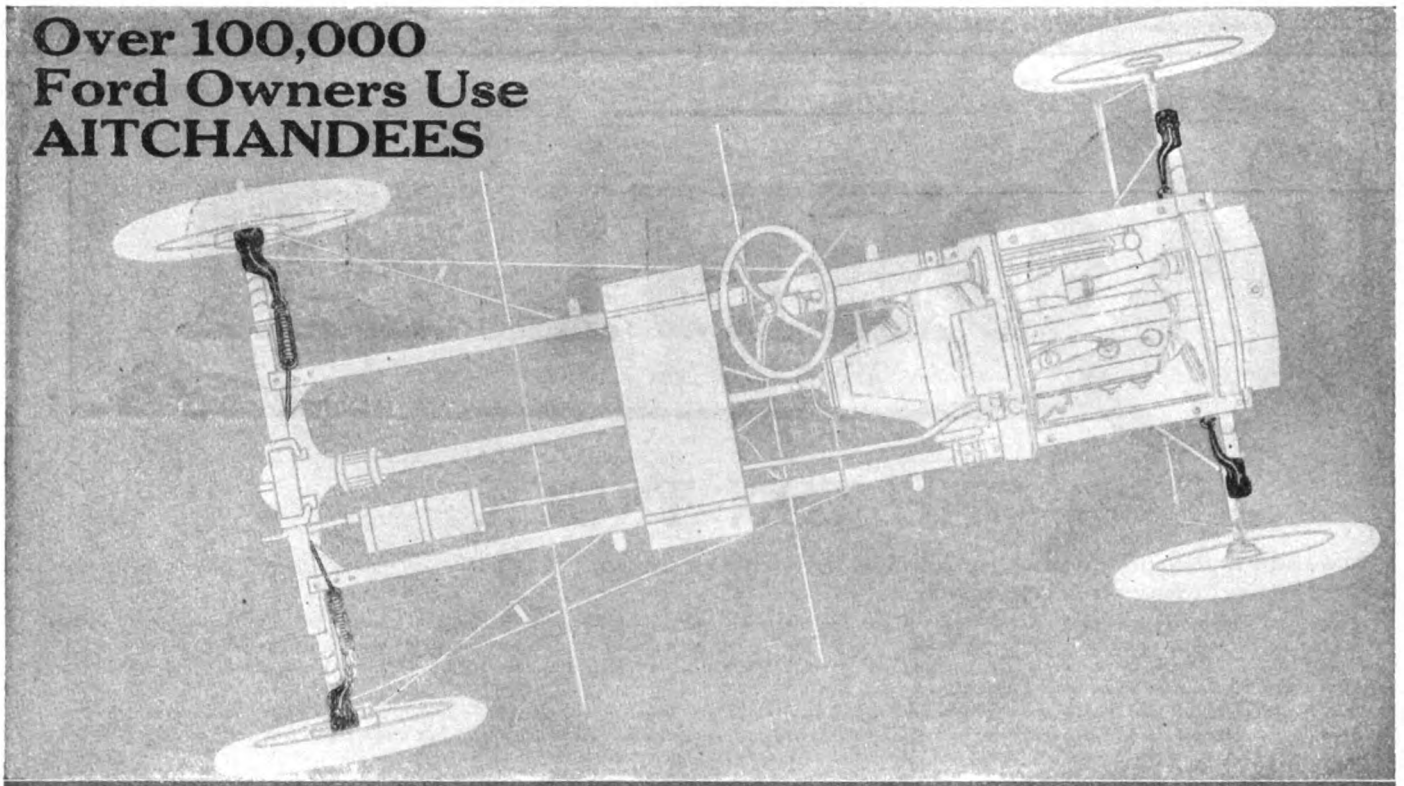
WHEELBASE, 129 INCHES; MOTOR, 3½ by 5, 35 H.P., four cylinders, cast en bloc. OVERHEAD VALVES, long stroke. Crankshaft extra large on THREE BEARINGS of 2-inch DIAMETER; IGNITION, high-tension magneto; RADIATOR, CAST FINHEAD, built-up type; same as on highest price trucks; TRANSMISSION, three-speed selective sliding gear, annular ball bearings; DRIVE, through tubular shaft and double universal joints; TIRES, solid, 34x3 front, 34x3½ rear; INTERNAL GEAR DRIVE REAR AXLE, all gears chrome nickel steel, roller bearings throughout. Vanadium steel spindles; FRONT AXLE, I-beam, drop-forged; 2-inch spindles; COLORS, black and light orange; FENDERS, front and rear (rear with body only); LAZY-BACK, on driver's seat; Express Type Body, when purchased with chassis, $40 extra; top, $45 extra; Chassis, $895 complete; prices f.o.b. Newark, N. J.

H. J. Koehler Motors Corporation

Newark, N. J.

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Over 100,000
Ford Owners Use
AITCHANDEES



Ford Owners!
Here's Riding Comfort

Comfort—Aitchandees, the original cantilever type shock absorber, are made solely for the comfort of Ford owners. The sensitive spring and the strong arm of the Aitchandee attached to the spring of the car hold the body of the car still and even while the wheels and axle follow the contour of the road.

Economy—This popular shock absorber *lowers* gas bills and *adds* fully 20 per cent to the life of your tires.

They save wear and tear on the engine, transmission and all vital working parts—adding years of life to the car.

Ask your dealer to show you Aitchandees today. He will attach them to your car in less than an hour. No holes to bore. Aitchandees can't mar the appearance of the car because they are scarcely visible.

Single Arm, $10 Set of Four

Twin Arm, $12 Set of Four

Guaranteed for Life of Car

The NEW TWIN Aitchandee

The new Twin Arm Aitchandee has the same working principle as the Single Arm except that each unit is doubled—two arms and two springs.

Biggest Shock Absorber Order Goes to Aitchandee

A leading Chicago distributor recently ordered 12,000 sets of Aitchandees for immediate delivery. Dealers everywhere report biggest Aitchandee sale.

Dealers: The Aitchandee is tremendously popular—well advertised and well constructed. It sells itself. Write for Aitchandee facts in booklet form.

The H. & D. Co., Inc., Goodland, Ind.

AITCHANDEE
"TRADE-MARK REGISTERED"
Shock Absorbers

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READY FOR YOU SOON

THE 1917 Catalog of The Gibson Company will be off the press early in March. We are now completing our mailing list. If you desire a copy of this unusual and valuable book, we suggest that you write to us at once—requesting it. It will be sent, gratis, to legitimate accessory dealers and garage operators—none other.

This book contains approximately 400 pages. It is the most complete and valuable publication of its kind ever offered in the accessory and equipment fields. It will serve you well as a buying guide—and give you a great deal of practical information. Write today for your copy. Ask for catalog G-2.

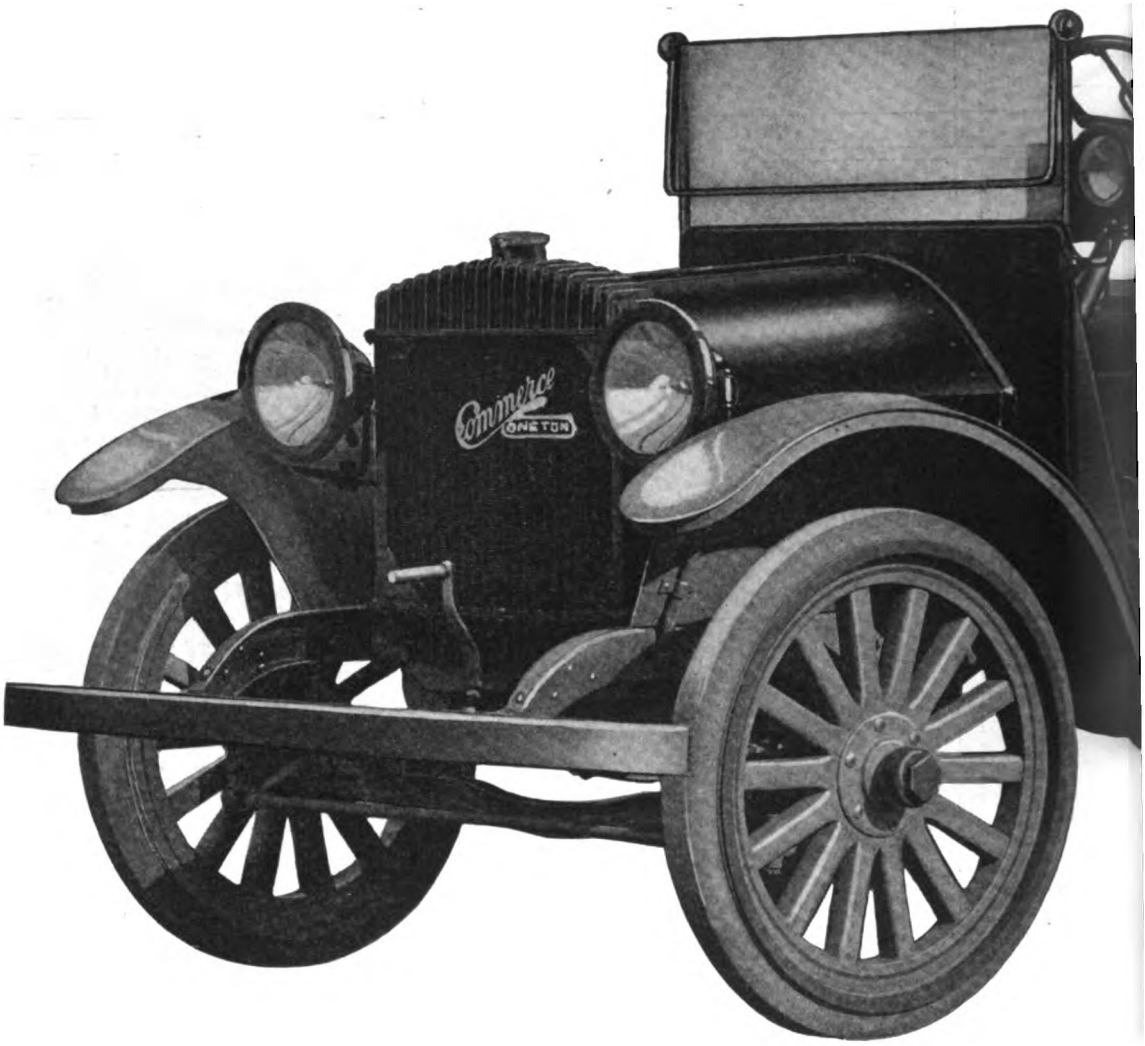
THE GIBSON COMPANY
INDIANAPOLIS

THE STERLING MARK ON MOTOR ACCESSORIES
Gibson Quality

Motor Car Accessories and Tires

Shop Equipment and Electrical Supplies

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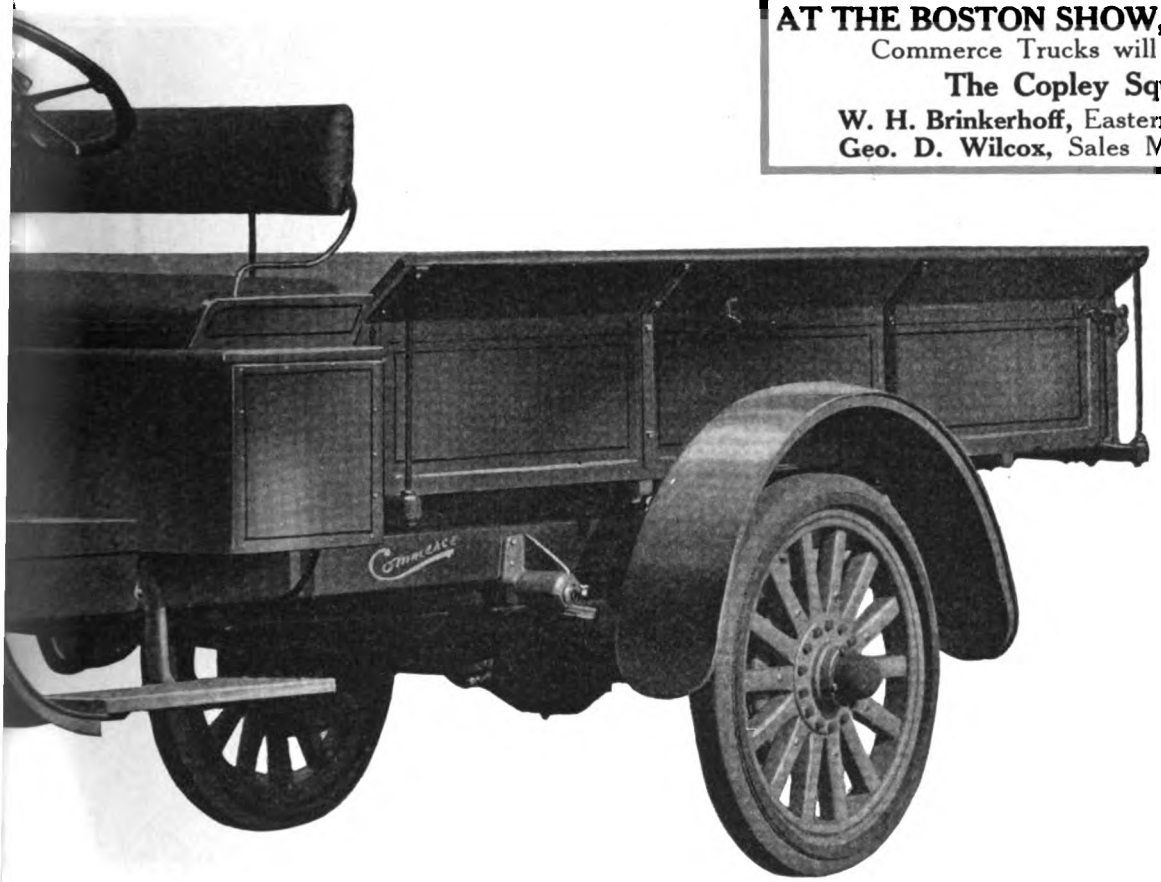
FAR IN ADVANCE OF ALL COMPETITORS

Commerce

ONE TON Completely equipped with Starting and Lighting System, Windshield, Stewart Vacuum System, Bumper, Pierce Governor and open Express Body—Internal Gear Drive. **$1175**

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AT THE BOSTON SHOW, MARCH 3rd to 10th,
Commerce Trucks will be on Exhibit at
The Copley Square Hotel
W. H. Brinkerhoff, Eastern Dist. Manager and
Geo. D. Wilcox, Sales Mgr., in Attendance.



ALL ALONE—IN POINT OF EQUIPMENT

Some other trucks have self-starters—some have lighting systems—some have bumpers—

But the Commerce is the only truck that has ALL of these things (and several others, including windshield and spotlight) NOW—TO-DAY!

This is a big real advantage, for these things are *needed* on a truck, and are generally bought by the truck owner at *extra cost*—and he has to wait while they are put on.

Of course the Commerce has many other valuable selling points, as can readily be seen by glancing at the list of quality units below—and by looking up the actual performance of this truck during the last 7 years—

But this point of equipment is so evident—it shows so plainly the foresight and care exercised by the builders of this remarkable truck—that we are taking pains to call your attention to it.

This is not an argument—it is merely a statement of facts—there is no answer to it.

UP-TO-THE-MINUTE EQUIPMENT

Three Types of Bodies—A Windshield—Remy Starting and Lighting—A Spotlight—A Bumper (integral with frame)—Large Searchlights (with dimmers)—Stewart Vacuum System—Pierce Automatic Governor.

REAL QUALITY UNITS

Continental Motor—Torbensen Internal Gear Rear Axle—Cast Tank Radiator with Removable Core—Truck Type Roller Bearing Front Axle—Unit Transmission, special truck type—Detroit Steel Products Company Springs.

These, together with a special truck frame and fittings such as are usually found in a truck of 2-tons capacity, are the principal units that enter into the construction of the "Model E" Commerce 1-ton Truck.

DEALERS

Commerce Dealers have it over their competitors "like a tent." They have a truck that is unbeatable in its class, and with this Big Advantage of complete equipment there is nothing to it. We still have a little room left for live, dependable dealers. Write us to-day.

¾-Ton Model, $975. Supplied with 3 types of bodies

Commerce Motor Car Company

DETROIT MICHIGAN

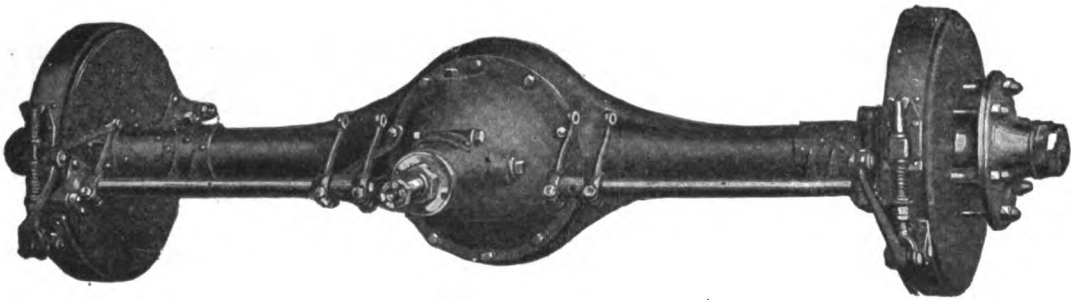
W. H. Brinkerhoff, Eastern District Manager, Belmont Avenue, Elmhurst, Long Island, N. Y.

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Worth

A PLEASURE car axle may have great strength and still lack in accessibility; it may be highly efficient without the strength to support its own efficiency. No axle can be chosen because of its superiority in any one feature of construction of design. **Worth** can only be determined through the merging of all these features into the finished product.



Through each development of the automobile industry the value of Columbia Axles has assayed higher and higher. In their construction every feature that determines the worth of a pleasure car axle is wrought into a harmonious unit. In thousands of the highest grade cars you will find them offered as proof of the manufacturer's intention to furnish equipment of unquestioned worth.

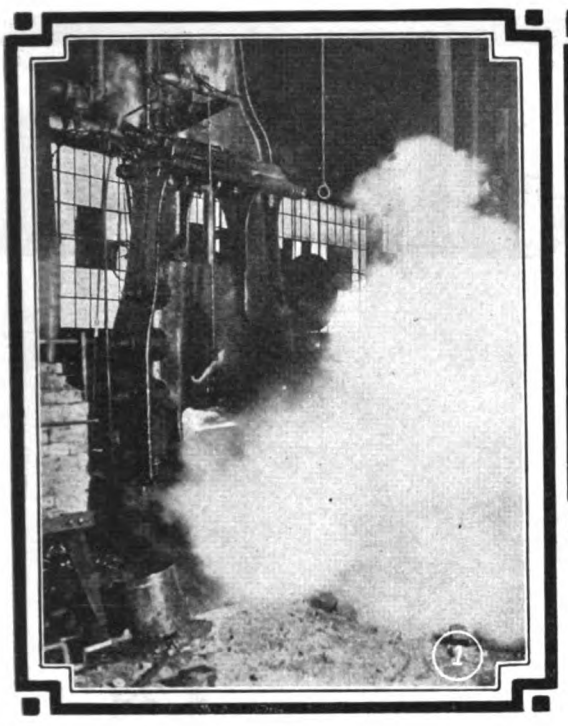
Catalog gladly sent on request

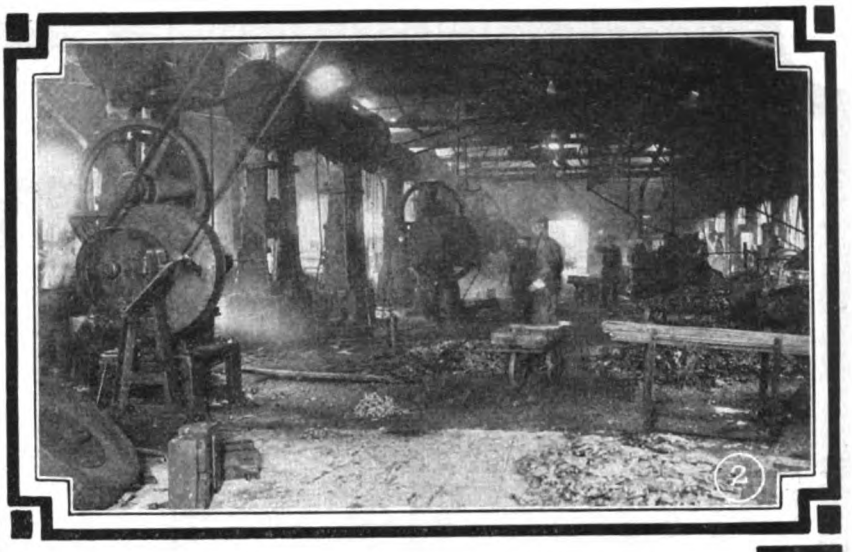
The Columbia Axle Co. Cleveland, Ohio

COLUMBIA AXLES

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(1) One of the big Briscoe Drop Forging Hammers in action.

(2) In the Briscoe Forge Plant.

The use of many drop-forgings—instead of cast parts—makes for Briscoe quality and aids materially in quantity production.

How the Low Price Is Made Possible

—and the Quality Kept Up

Increased production in our ten big factories—covering 45 acres of ground—has enabled us to provide greater-than-ever value in the new Briscoe at $685. Success has made it.

Highly modernized methods—from Foundry to Assembly and Finishing Shops—provide high quality throughout every inch of this handsome Briscoe. Because we build it entirely under our own roofs we save parts makers' profits. Thus the owner gets more for his money and the Briscoe dealer makes easier, faster sales.

YOUR OPPORTUNITY

If you are a progressive dealer, you will want the proposition we have to offer. It provides a **larger profit per car** than you can make on any other similar-priced automobile. Your territory may not be closed as yet. Wire us to hold it open for you. Get the actual figures of Briscoe dealers' selling success and the money **you** can make if you have these great quantity-and-quality factories back of you. Wire at once.

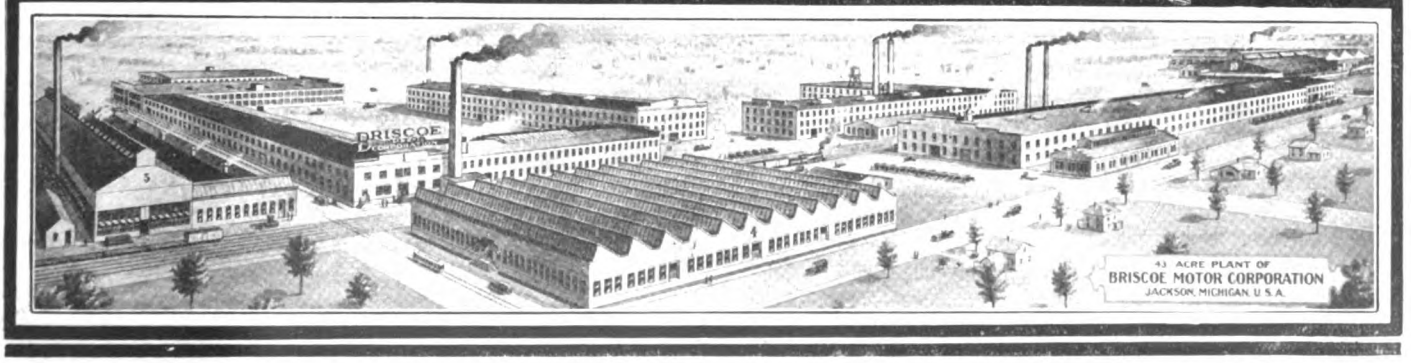
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BRISCOE $685

The Car With The Half-Million Dollar Motor

FULLY EQUIPPED

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2. Body Plant.
3. Service Plant.
4. Gear and Special Machinery Plant.
5. Forge and Heat-Treating Plant.
6. Motor Testing Plant.
7. Motor Assembly Plant.
8. Laboratory.
9. Final Assembly, Painting and Top Mfg Plant
10. Cam and Crankshaft Plant.



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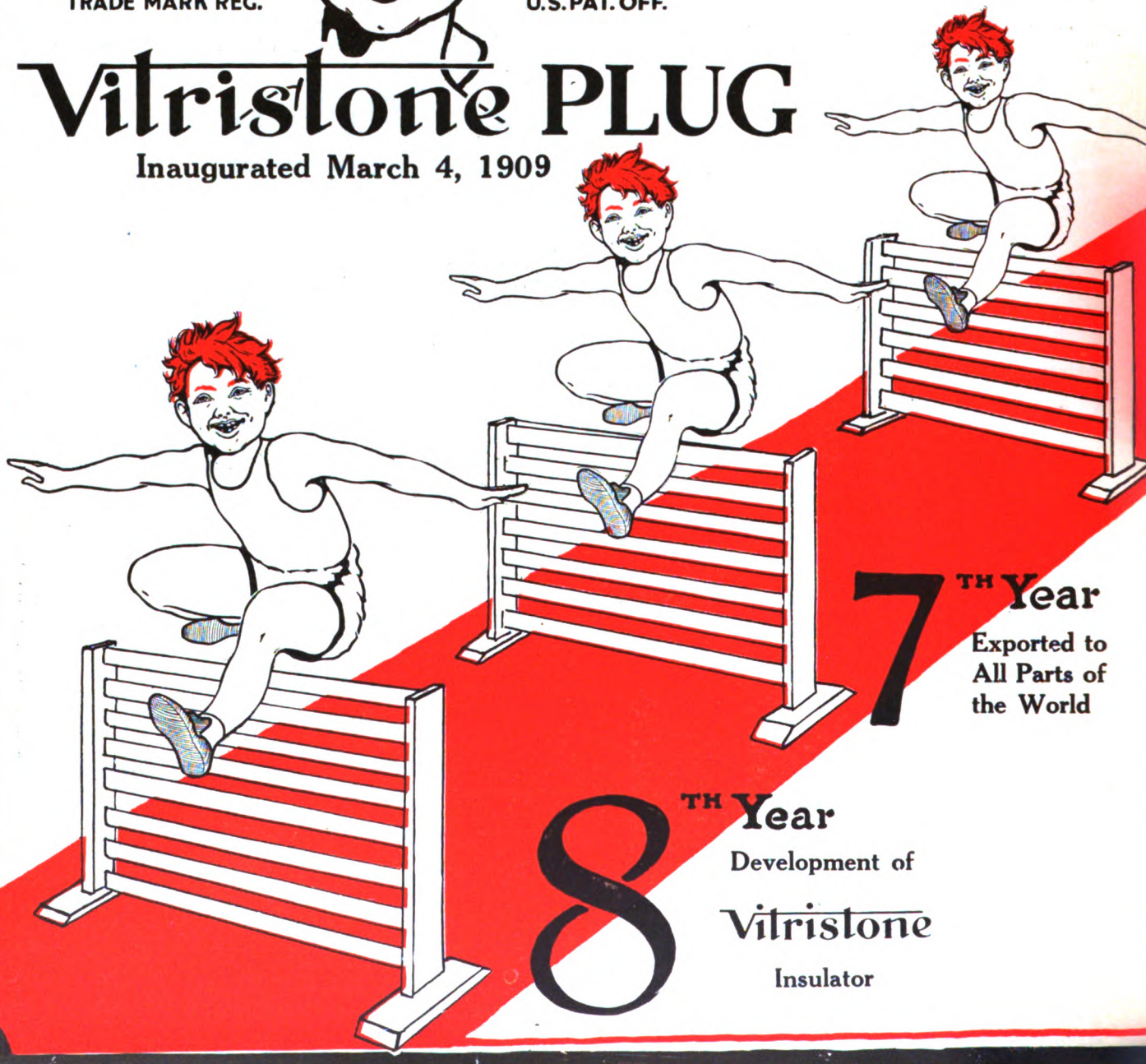
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Red Head

TRADE MARK REG. U.S. PAT. OFF.

Vitristone PLUG

Inaugurated March 4, 1909

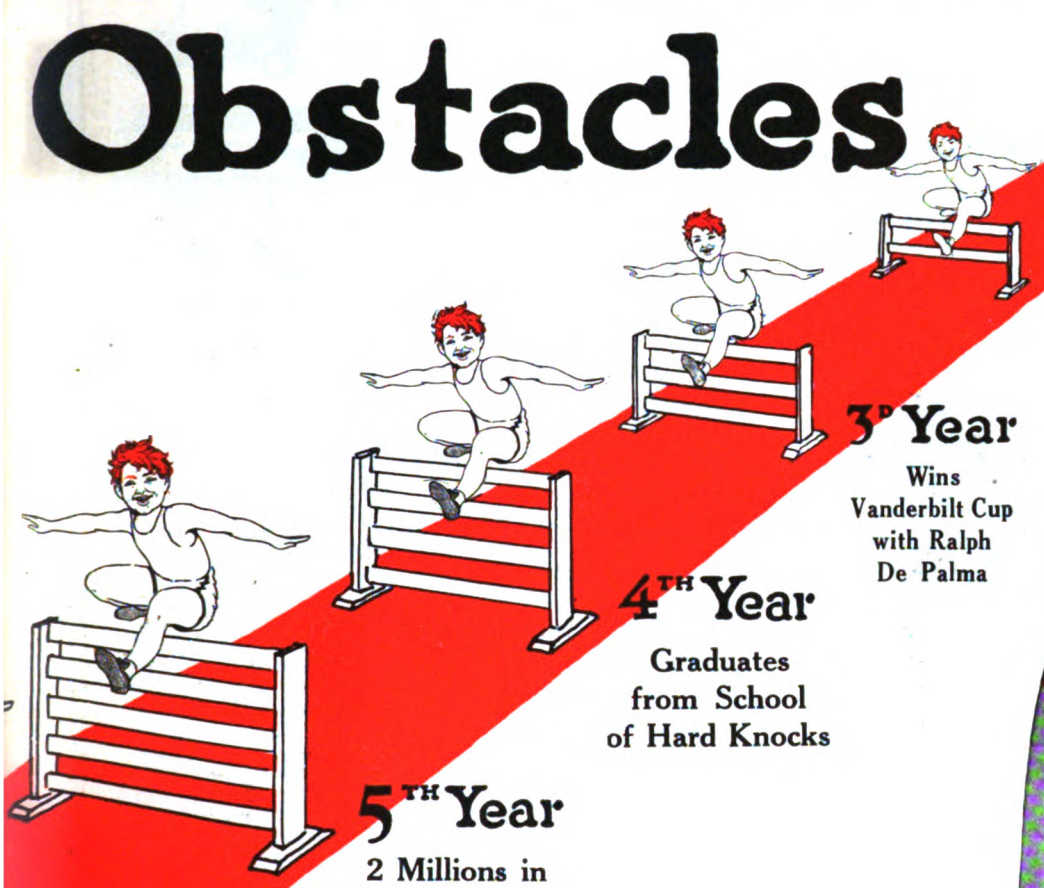


7TH Year
Exported to All Parts of the World

8TH Year
Development of
Vitristone
Insulator

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Obstacles



1ST Year
Introduction

2D Year
Popularity

3D Year
Wins
Vanderbilt Cup
with Ralph
De Palma

4TH Year
Graduates
from School
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5TH Year
2 Millions in
Successful Use

6TH Year
Handled by
hundreds of
Jobbers and
thousands of
Dealers



See What I Got For My Eighth Anniversary

They've strengthened my body with Vitristone, the artificial stone insulator. I now feel safe in those high speed motors, with their high compression and rapidly alternating heat of the explosion and the sudden chill of the intake.

Shakespeare said that "Apparel oft proclaims the man." My makers have improved my dress by black-enameling the shell and nickel-plating the terminal. They have individualized me among all spark plugs by enameling the bushing in red. You can see this in my new photograph.

I am not only the best looking spark plug in the ignition family, but I am also the best performer you can put in your motor.

Emil Grossman M'f'g Corp'n

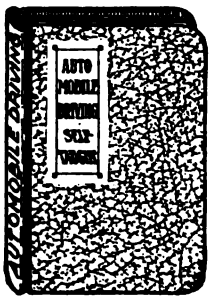
Vitristone made by us and used exclusively in Red Head Spark Plugs.

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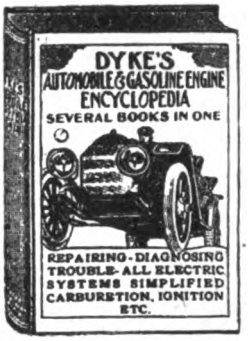
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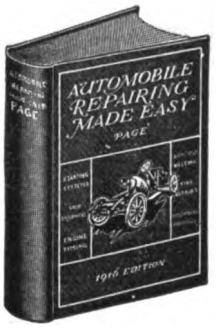
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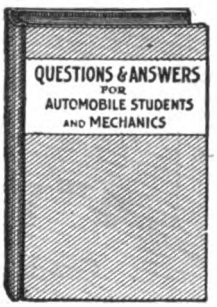
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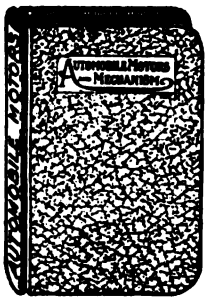
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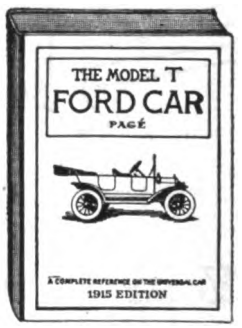
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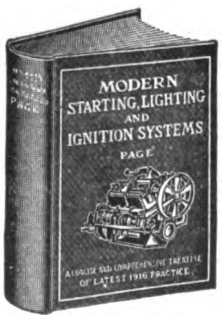
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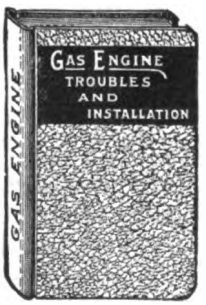
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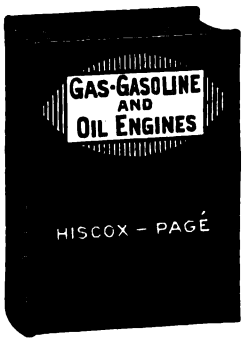
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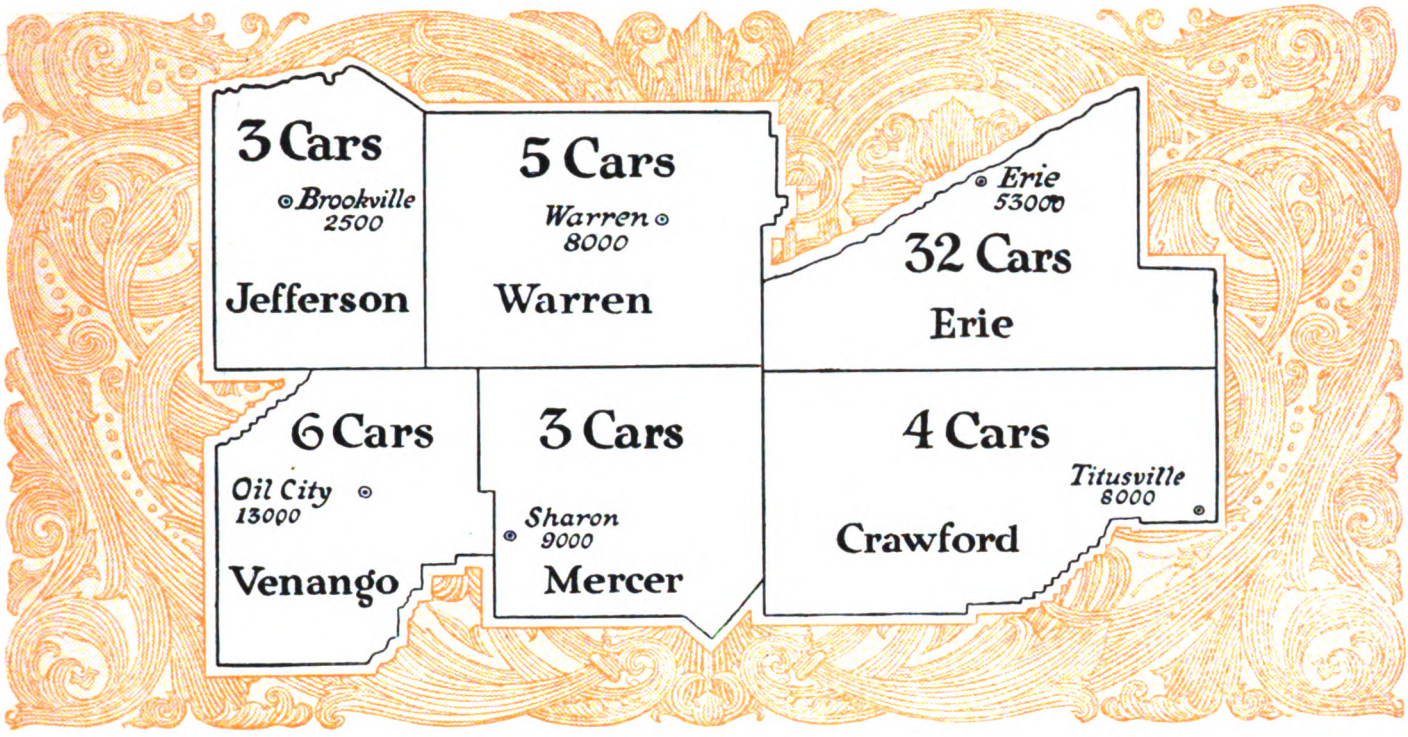
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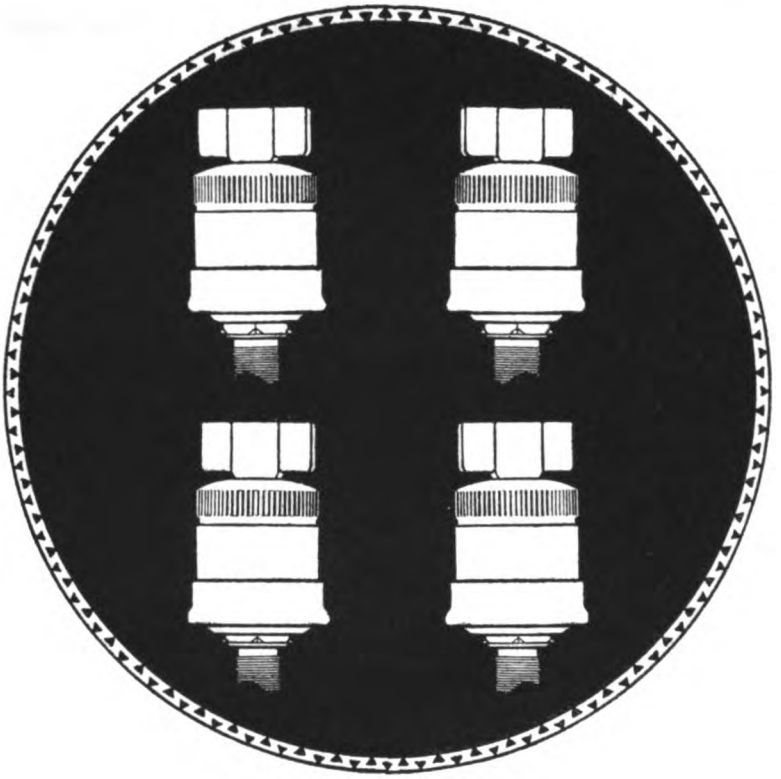
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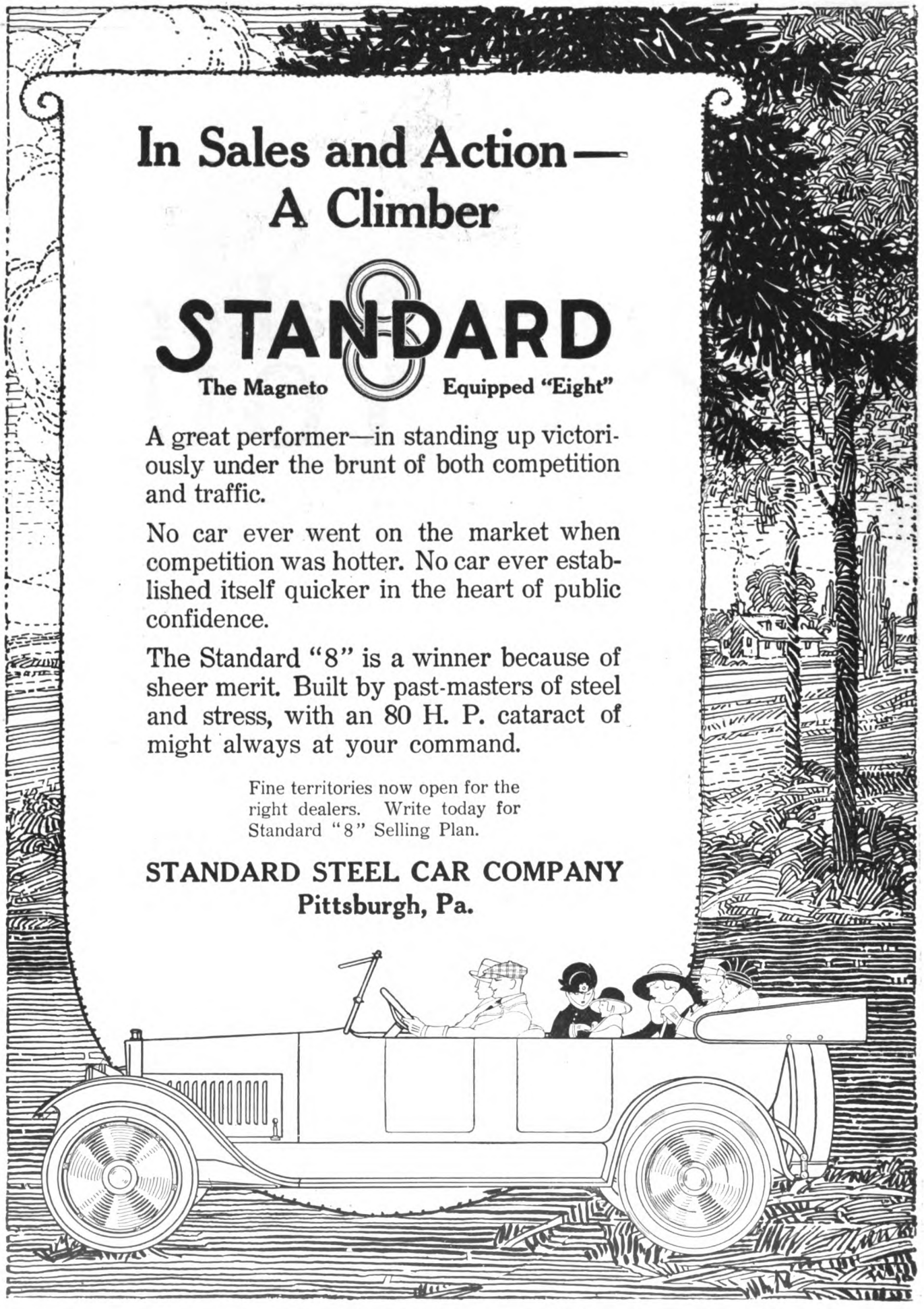
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Peerless Eight

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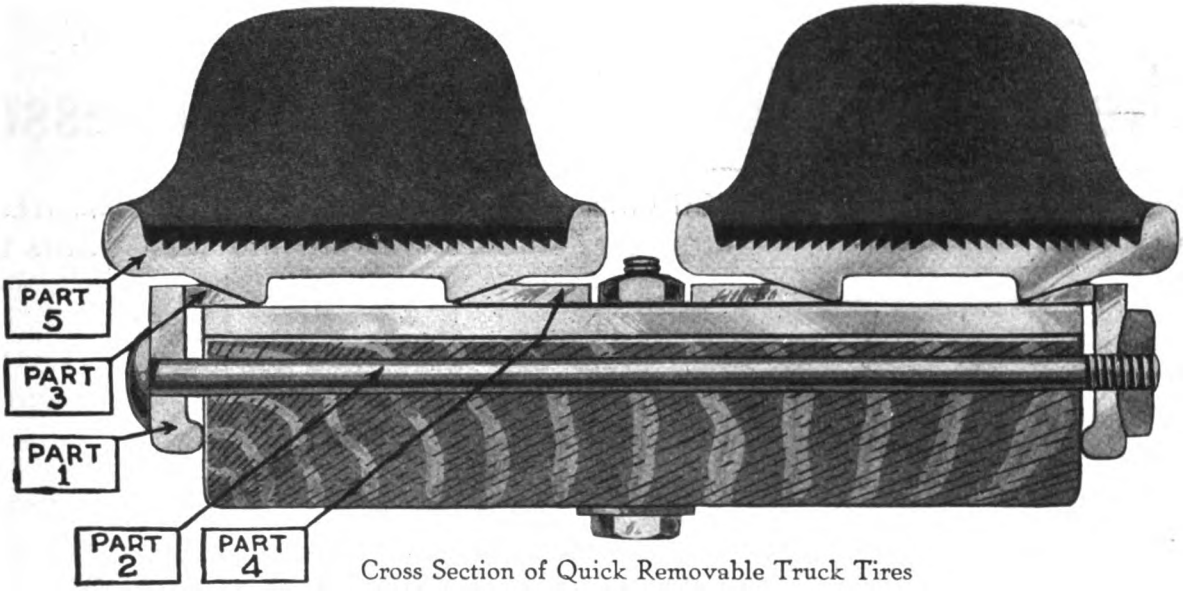
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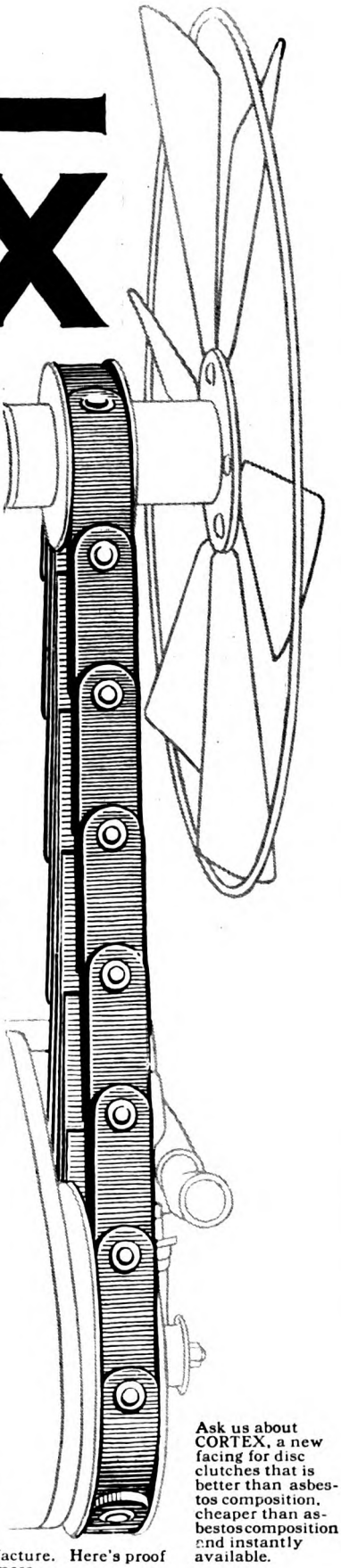
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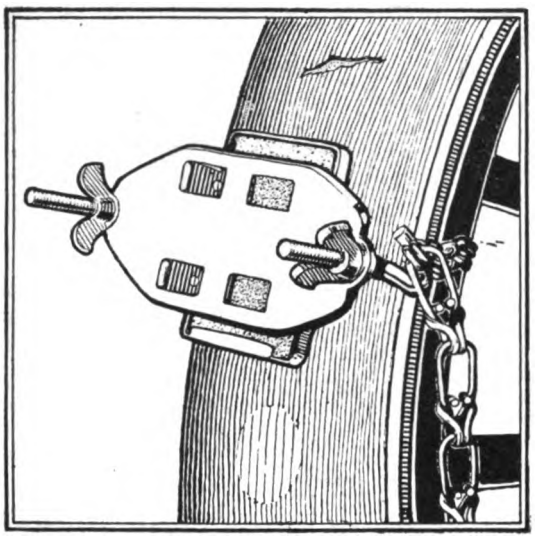
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All-Purpose Truck . . .	1465
The Jeffery Quad	2850

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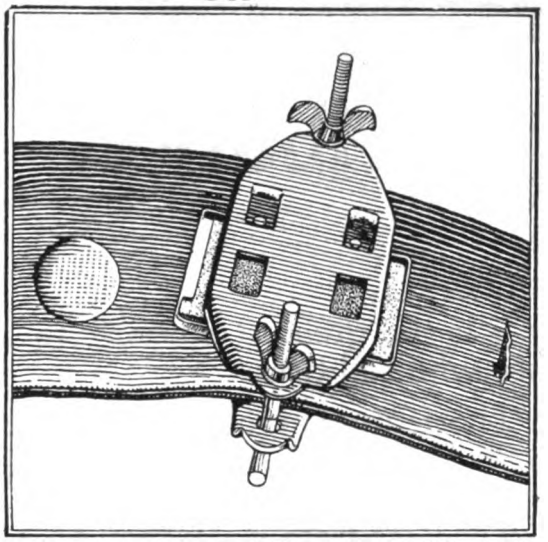
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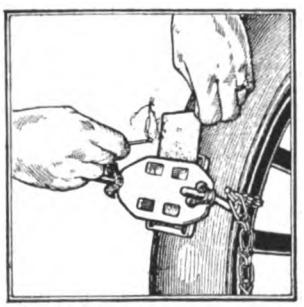


FOR CASING & TUBE REPAIRS

THE Marvel Sr. is as big an improvement over the ordinary type of vulcanizer as a "twelve" is over a "one-cylinder." It is new in size. It is the big brother of the Marvel Jr.; works on the same principle but has a wider range of usefulness.

Instead of gasoline or alcohol the Marvel Sr. uses a chemicalized heating unit that furnishes just the right amount of heat at just the right point for a **perfect repair.**

Marvel Repair Gum is an absolutely **new** and **better** product than ever before furnished for the purpose. It is of the consistency of putty and works just as easily in filling a repair.



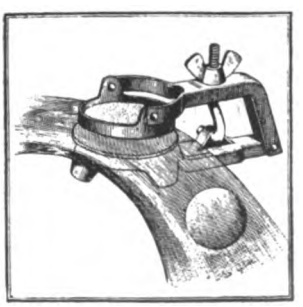
Tread-cuts, sand-blisters and such repairs can be made with the Marvel Sr. without deflating or removing casing from wheel.

Repairs can be made at any time or place for there is no flame to scorch the tube or tire and the harder the wind blows the faster the Marvel Sr. works. A repair made with this new vulcanizer is permanent.



EVERY MARVEL SR. OUTFIT FURNISHED COMPLETE WITH SUPPLY OF MATERIAL FOR LARGE NUMBER OF REPAIRS.

MARVEL JR. VULCANIZER FOR TUBE REPAIRS ONLY. COMPLETE WITH MATERIAL FOR HALF-DOZEN REPAIRS, $1.00.



More than half a million Marvel Jr. Vulcanizers have been sold by dealers located in every part of the country. Small in size, it is the biggest profit maker in the accessory field. There will be just as big a demand for the Marvel Sr. Order from your jobber *today*. Write us for the big line-up of selling helps we have issued.

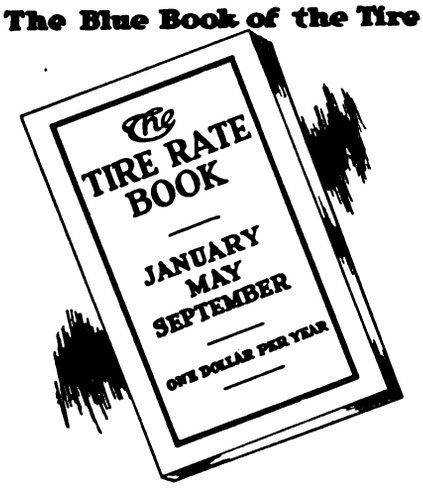
THE MARVEL ACCESSORIES MFG. CO., 7275 St. Clair Ave., CLEVELAND, OHIO

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The Tire Rate Book

"The Blue Book of the Tire Trade"

New Issue is ready for distribution



It is the greatest edition ever published—an invaluable guide to those who sell tires.

The features incorporated in this issue are:
90 Pneumatic Tire Price Schedules.
10 Solid Tire Price Schedules.
The Tire Rate Book Standard Telegraphic Code.
The Motor World Guide, containing principal specifications of all U. S. A. cars.
Pleasure Vehicle Tire sizes and Rim data on 197 different makes of cars.
Commercial Vehicle Tire sizes and Rim data covering 75 different makes of commercial cars.

The above information, and more that is both interesting and valuable, comprises this very latest edition of 176 pages—60 pages larger than the preceding issue.

Don't delay in mailing your subscription—
Do it now and know (among many other things) **how many tires must be made to equip U. S. A. cars in 1917, etc., etc.**
All of this is to be found in this edition that is just off the press. 50c yearly; 25c a copy.
Issued three times every year.

Order by Coupon or by Letter

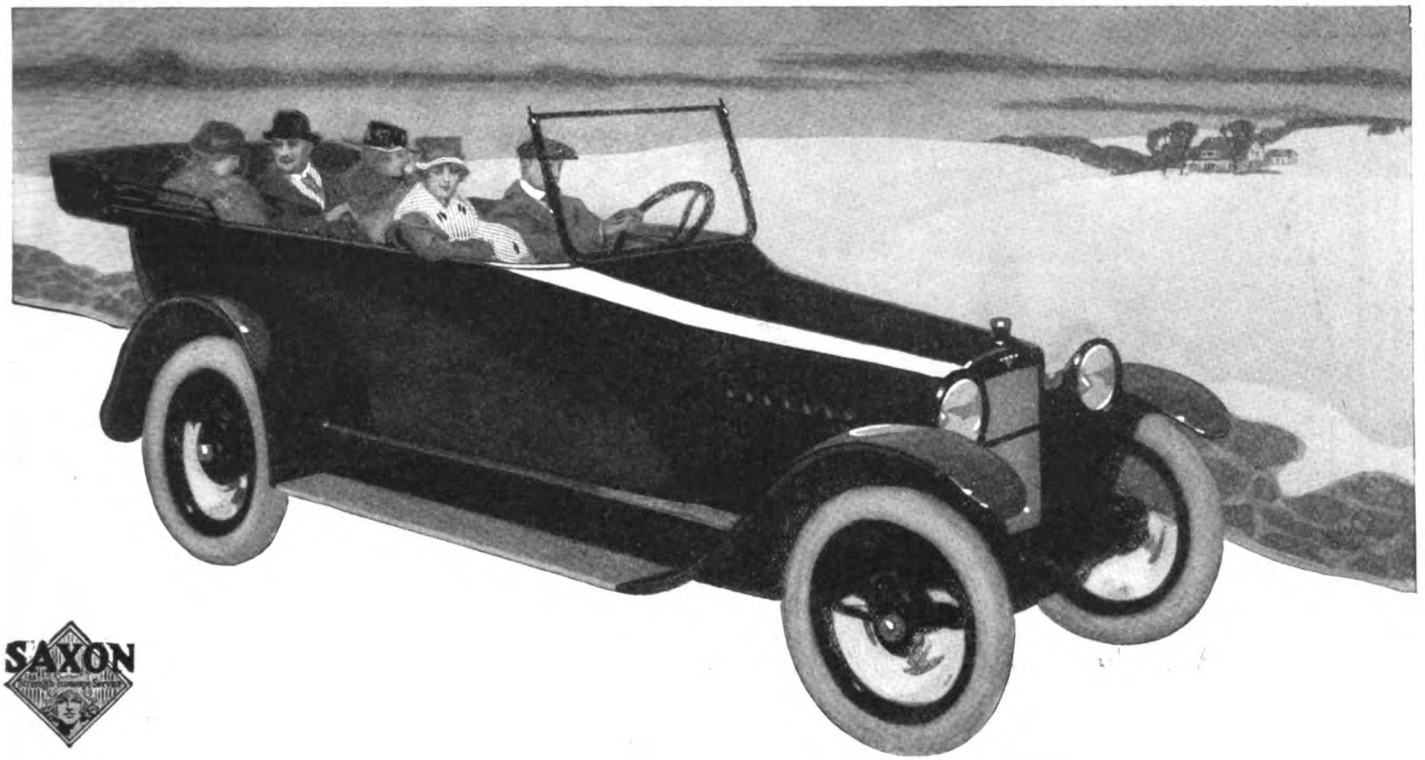
The Tire Rate Book (Published by Motor World),
239 W. 39th Street, New York City.
Enclosed please find $..... for ..... subscriptions beginning with the January, 1917, issue.
Name .....
Address .....
Subscription price, 50 cents per year — January, May and September issues.

THE TIRE RATE BOOK

PUBLISHED BY

The CLASS JOURNAL CO.
239 West 39th Street
NEW YORK, N. Y.

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A Car Whose Quality Lifts It Above the Level of Its Price

Though priced at less than $1000 Saxon "Six" has forced—actually compelled—people to think of it in the terms of costly cars.

No other car we know of has ever accomplished this feat.

Can you think of any car in any other price class whose superiority is as distinct and pronounced as that of Saxon "Six" among cars costing less than $1200.

The answer of course is in the motor—the famous Saxon "Six" high-speed motor.

In high-gear work, in pulling power, in smoothness, in flexibility, Saxon "Six" gives a performance that seems incredible in a car from the less-than-$1200 class.

Consider if you will a certain car of "less-than-six-cylinders" of similar price and good reputation.

At a speed of twenty miles per hour this "less-than-six" developed 1512.73 power impulses per minute.

Saxon "Six" showed 2993.925 impulses per minute.

Or, under the same working conditions the Saxon "Six" motor showed nearly 98% greater continuity—greater smoothness—greater uniformity of torque.

It is quickly apparent that the "less-than-six" motor leaves much to be desired.

For the less the number of impulses per minute the less smooth is the power-flow and the greater is the vibration.

And vibration induces friction, which is, as of course you know, the fiercest foe a motor car has to face.

Now you will see just how much advantage accrues from the 98% smoother power-flow of Saxon "Six."

This well-known car of less-than-six-cylinders, previously mentioned, in repeated trials required 30 seconds to reach a 45 miles per hour speed from a stock-still stand.

Under the same conditions Saxon "Six" time and again duplicated this feat in 23 seconds.

This shows 22% faster "pick-up" in favor of Saxon "Six."

These instances are not cited as extraordinary performances of Saxon "Six." Nor are you to view them as such. For they are not.

Rather are they representative of the type of performance Saxon "Six" gives.

And they picture, with fairness, we believe, the inherent superiority of Saxon "Six" over any other at less than $1200.

Saxon "Six" is $865; "Six" Sedan, $1250; "Four" Roadster, $495; f.o.b. Detroit. Canadian prices: "Six" Touring Car, $1175; "Six" Sedan, $1675; "Four" Roadster, $665. Price of special export models: "Six," $915; "Four," $495; f.o.b. Detroit.

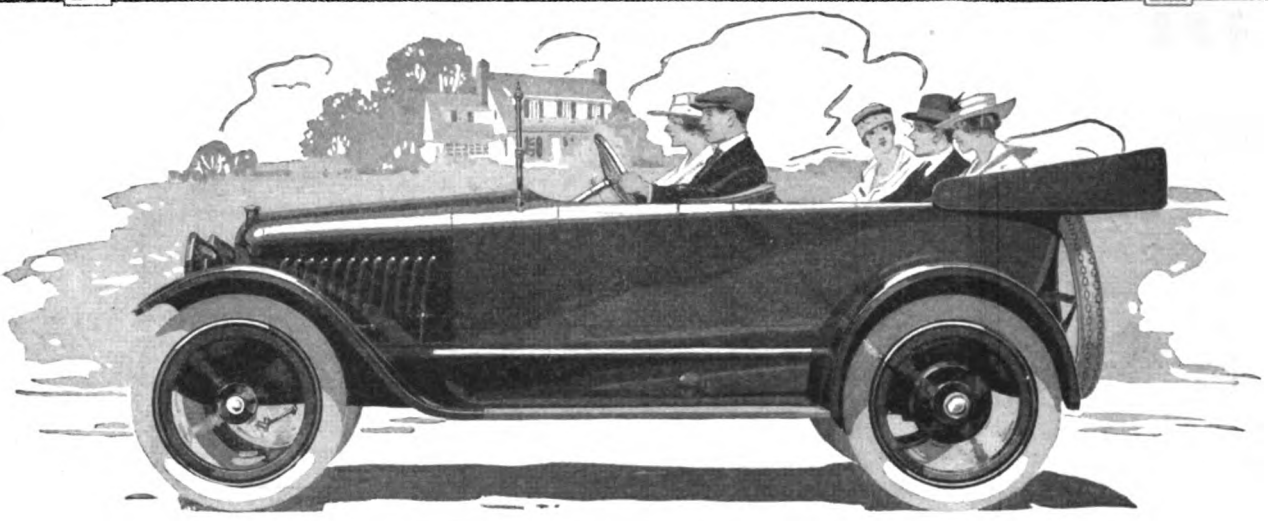
SAXON "SIX"

A BIG TOURING CAR FOR FIVE PEOPLE

SAXON MOTOR CAR CORPORATION, DETROIT

(924)

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At Every Show the Grant Six Dominates its Price Class

GRANT SIX

Five-Passenger Touring Car or Three-Passenger Roadster

$875

f.o.b. Cleveland

Evidence of the fact that the Grant Six is the greatest six-cylinder value below a thousand dollars is continually piling up.

Perhaps one of the most noticeable testimonies is the remarkable attention accorded the Grant Six at all the shows.

But still more strikingly conclusive are the swiftly growing sales. Every Grant dealer has interesting proof of the fact that Grant value is forging Grant sales up to the front row.

That one little word "Compare" does the trick.

When buyers begin making *comparisons* and sifting facts for themselves they are bound straight for the Grant Six.

There is no alternative.

The wonderful overhead valve motor with its surplus of power; the full floating rear axle; the extra long springs, and the tremendously strong list of mechanical features that indicate the best at every point, and the beautifully finished Grant body, all are convincing value facts.

The kind of Facts that pull buyers.

And, when you consider the records of the car in the service of users—its splendid performance in all sorts of tests; its marvelous economy; its comfort; its style; its durability in service; its reputation—

All mean sales—greater sales—continued dominance.

Thus the reason back of the new model factory with its modern equipment and its capacity for the production of 35,000 cars is plainly disclosed.

Summed up it spells Grant *Value*.

And this is why Grant dealers are making money and why Grant sales are growing.

Grant Motor Car Corporation **Cleveland, Ohio**

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UNDISPUTED CHAMPION

TO fight and win trade battles for *the dealer* is the manufacturing and selling policy back of "Marathon" Tires,—and this policy is winning by a 3 to 1 increased dealer demand.

The heaped-up Concentrated Tread; the 100% effective Angle non-skid design; and the stout, muscular tire body, built *by hand* the thorough Marathon way, are all put there to create Mileage, Service and Good Will—the Dealer's best trade-building asset.

Marathon 5000-mile guarantee; *exclusive* territory and price protection; sales support in building a tire trade *all your own;*—these round out the Marathon Championship on all points that really count for the Dealer.

Get Marathon fighting *for* you instead of *against* you.
Write for Marathon Exclusive Proposition.

The Marathon Tire & Rubber Company, Cuyahoga Falls, O.

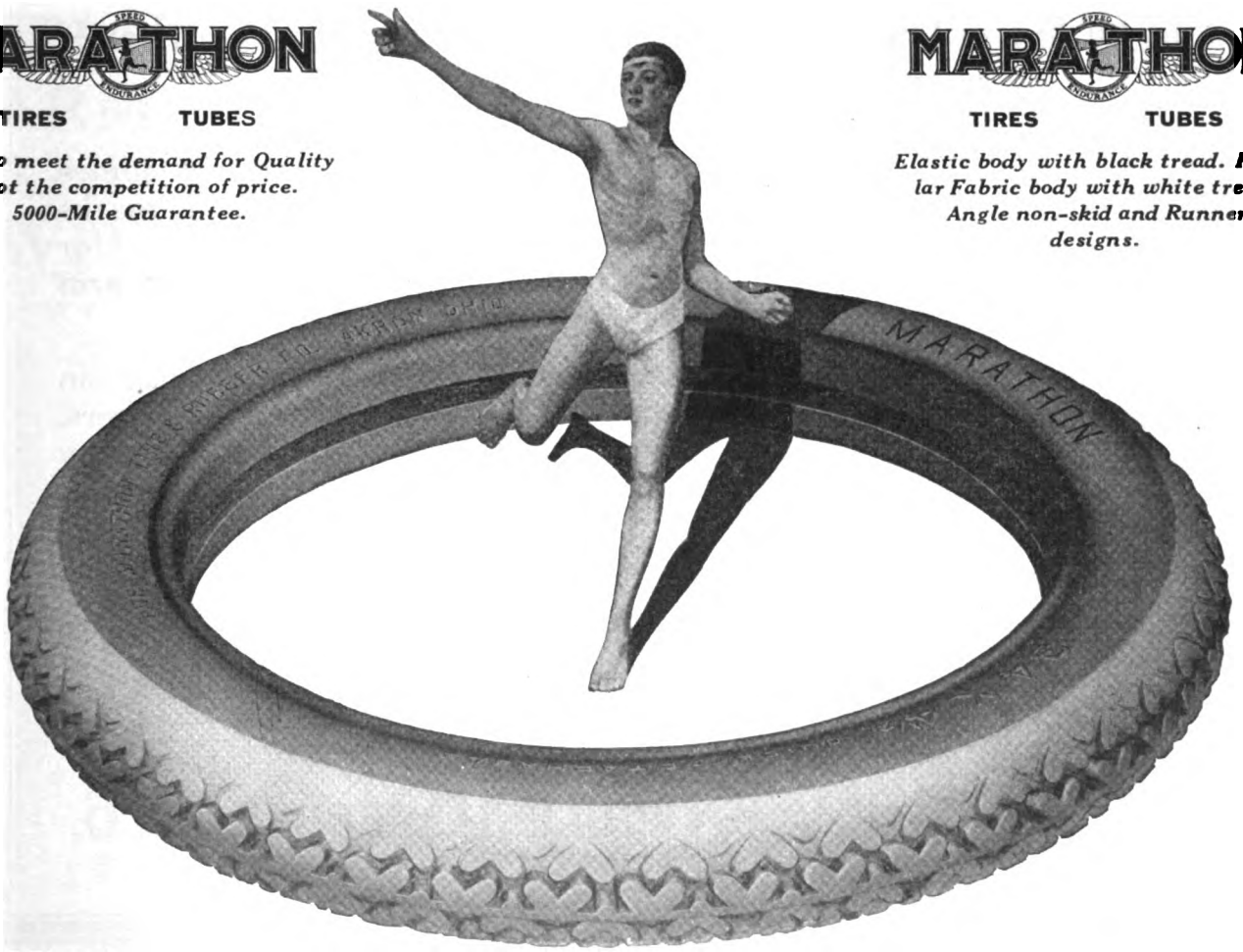
Canadian Plant: St. Catharines, Ont.

MARATHON
TIRES TUBES

Built to meet the demand for Quality —not the competition of price. 5000-Mile Guarantee.

MARATHON
TIRES TUBES

Elastic body with black tread. Regular Fabric body with white tread, Angle non-skid and Runner designs.



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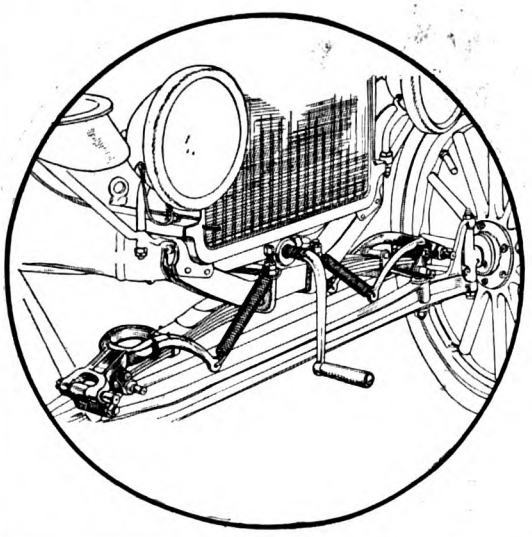
The Original Double Arm SHOCK ABSORBER

W & C

For FORD CARS

This New Trade Mark Is the Sign of Over 100,000 Sets of W & C—The Original Double Arm Shock Absorber—In Actual Use on Ford Cars Today

$10—Per Set of Four



The unqualified success that comes to **one product in each field,** marks the beginning of the third year for W & C — the original **double arm** shock absorber for Ford cars.

Established from coast to coast—in the catalogs of leading jobbers, stocked by leading dealers, used by more than 100,000 Ford motorists—W & C stands first in service and success.

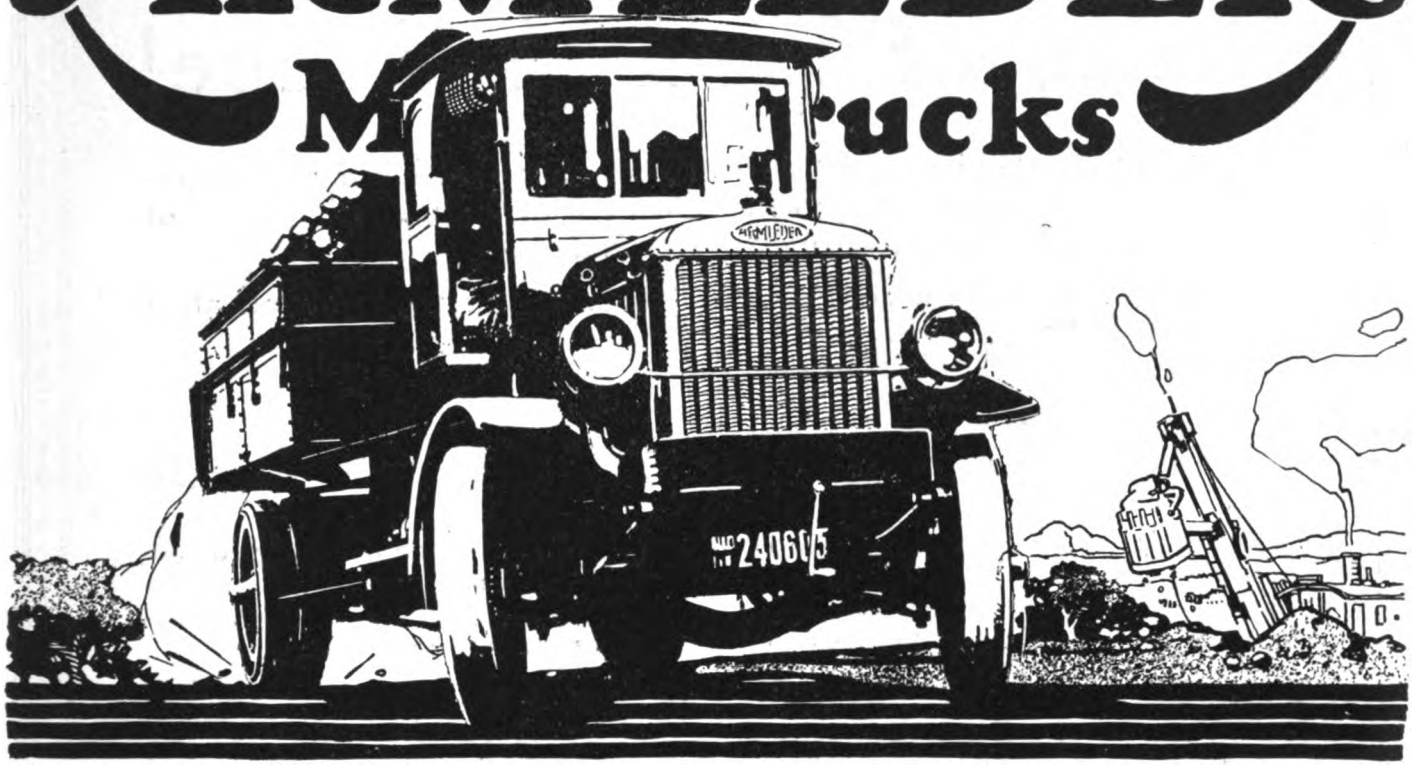
It is the one shock absorber that does more than you expect.

Owners—Ask your dealer. **Dealers**—Ask your jobber's salesman.

PHILIP H. WEBBER & CO.
HOOPESTON, ILLINOIS

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ARMLEDER Trucks



SELL ARMLEDERS—AND PROSPER WITH US

Armleder truck sales are bounding—every week sets a new record.

The flood of orders has forced us to expand our production facilities and double our output.

And every order adds substantially to the bank account of an Armleder dealer. As Armleder sales mount Armleder dealers grow in prosperity.

A few months ago some of these dealers had never sold a truck. Now they have flourishing and substantial businesses. They are abandoning their other lines to concentrate on Armleder sales.

Join the procession! Grow with us!

Write now for the Armleder dealer's proposition.

Two-Ton
Worm Drive
Three-and-a-half-ton

THE O. ARMLEDER COMPANY

Twelfth, Plum & Charles Sts., CINCINNATI, OHIO

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Notice of Price Advance!

Because of greatly increased cost of materials and labor it is necessary to advance the net price of Motor World's simplified System of Accounting to $15.00. Present price is $12.00.

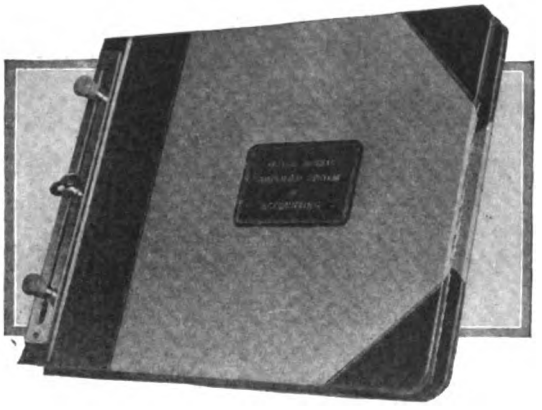
New price will become effective on all orders placed on and after April 1st, 1917.

Order Now and Save 25 Per Cent

Every dealer and garage owner who is operating without a complete and accurate system of accounting owes it to himself—to his very best business interests, to reform his methods and get started on the right track.

Already more than 1500 of these simplified systems are in successful operation in as many dealer and garage establishments throughout the United States. Hundreds of letters are on file from dealers and garage owners who commend Motor World for having developed this wonderful simplified accounting system.

If your business is being conducted in a systemless manner we urge you to get started on the right course NOW. Take advantage of the present low price. Get your order on file now—before the price is advanced twenty-five per cent.



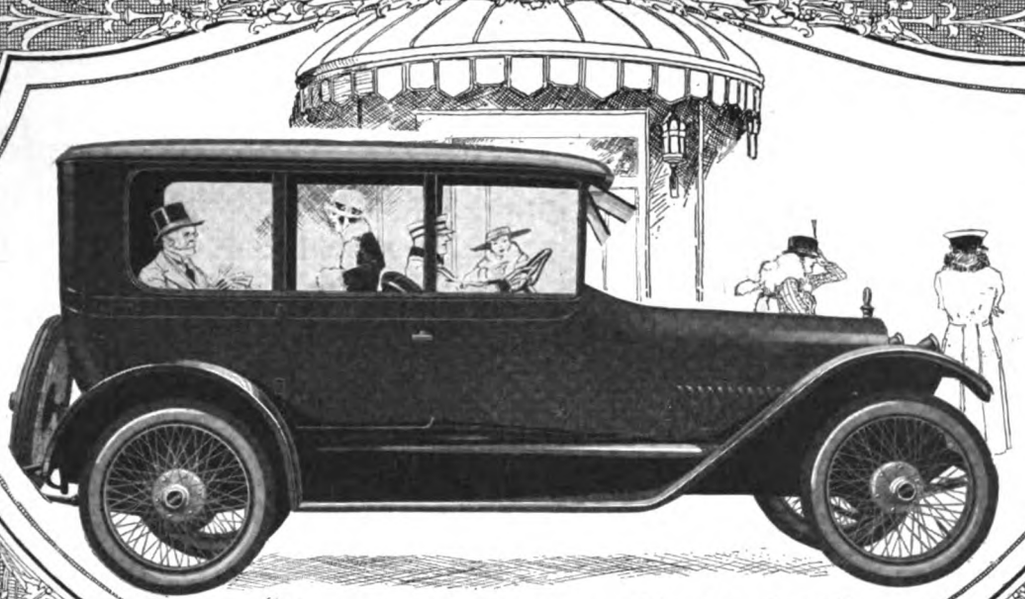
The entire system is contained in one loose leaf binder — everything in one book, including an index set and 400 "Income," "Expense" and "Accounts Receivable" sheets. Also included is a 36-page book which describes the operation of the system in detail. Instructions are written so that you grasp every detail even tho you never had bookkeeping experience or training.

Order now—don't put it off a single day. Remit by check or money order. Address:

MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

239 West 39th St., New York City

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"America's Greatest 'Light Six'"

HAYNES

"America's Greatest 'Light Twelve'"

THE dealer who signs a HAYNES contract signs an insurance policy against future dull business. HAYNES Service—HAYNES national and local advertising—HAYNES Prestige of 24 years' standing—reduce the HAYNES dealers' selling effort—increase his ultimate measure of success.

See Us At the Boston Show

The Haynes Automobile Co.
70 S. Main Street KOKOMO, IND.

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Note the ADJUSTABLE end brackets—a special feature of the J-M Speedometer, Instrument Board Type

FORD models differ in width of body, and instrument boards of fixed length are applicable to one type only. The instrument board supplied with the J-M Speedometer, Model 3009, provides for width discrepancies by an ingenious adjustable end bracket (Patent Applied For). No need to measure up the car, for this board will fit it without other labor than taking nuts off two windshield and two body bolts, slipping the board on, and replacing nuts.

The combination J-M Speedometer and Instrument Board will be shipped and sold *assembled*—the board cannot be sold separately. Retail price, complete, $11.25.

The new J-M Speedometer is made up with black dial and large clear *white* figures and pointers. Speed range, 0 to 60 miles. New 10,000-mile season odometer with exceptionally large figures.

Instrument Board is of wood, finished in soft, dull black, with J-M Speedometer flush mounted. The wooden board makes easy the application of other instruments, such as lighting and starting switches, clocks, carburetor controls, etc.

Model 3006 is our new Suspension Plate Type of Speedometer, which fastens on the windshield strip of Ford cars wherever desired. Speedometer is mounted flush in plate. Retail price, $11 complete.

Model 3000, for bracket mounting next to spark coil box, has 60-mile speed scale and 100,000-mile season odometer movement. Finished in black enamel with brass trimmings. Retail price, $10 complete.

Further details on application.

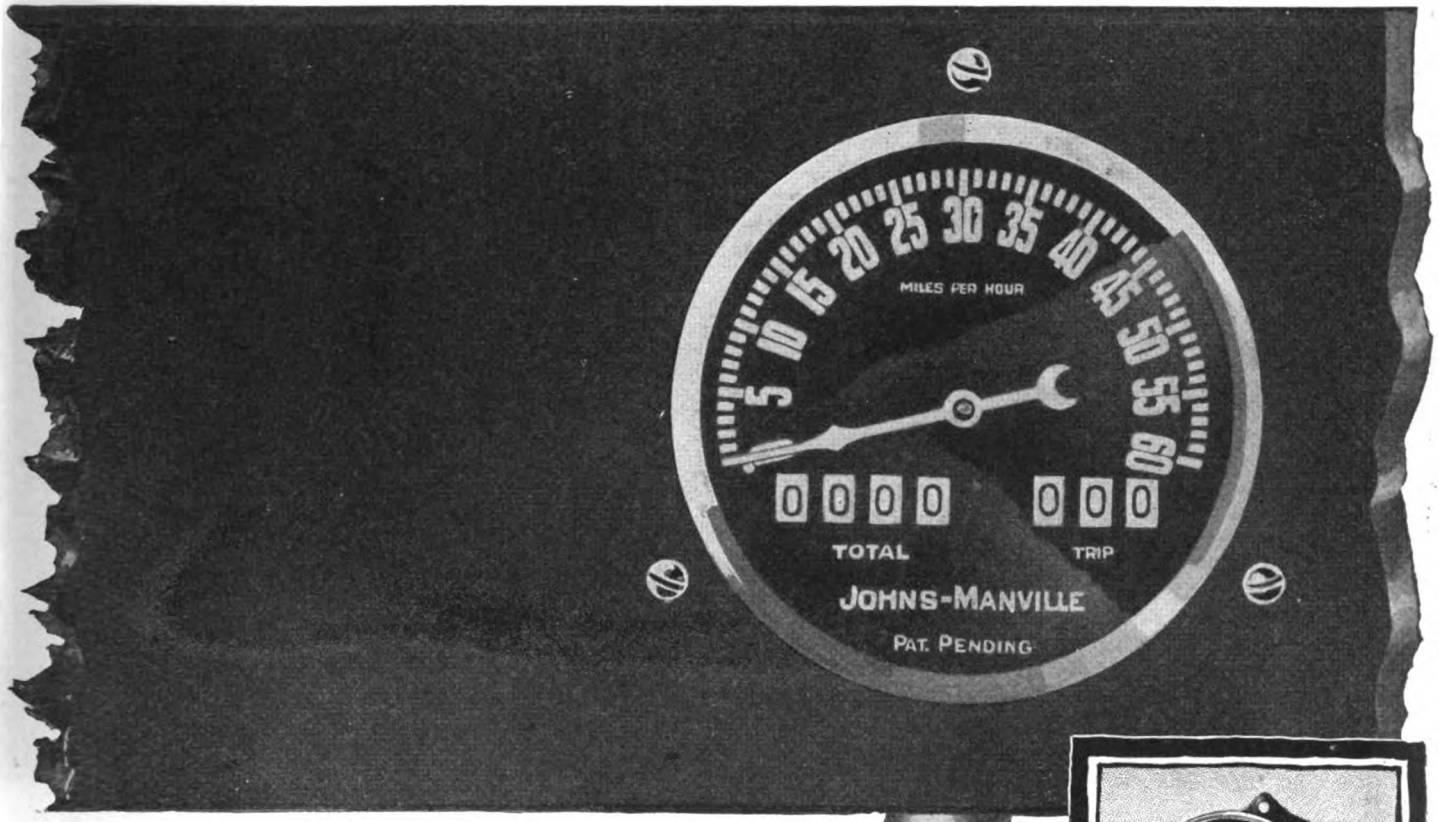
H.W. JOHNS-MANVILLE CO.
NEW YORK CITY
Branches in 55 Large Cities

Other J-M Automobile Accessories include J-M NON-BURN Asbestos Brake Linings, J-M Fire Extinguishers, J-M Soot-Proof Spark Plugs, J-M Auto Fuses, and J-M Automobile Tape. Jobbers or dealers interested in handling the complete line may get information from our nearest Branch.

JOHNS—

When writing advertisers please mention Motor World—It identifies you

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An Accessory Line that Sells— and a Sales Policy that Satisfies

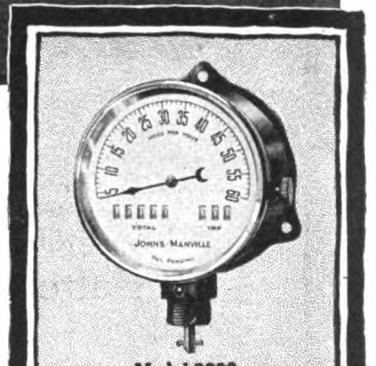
BEFORE you select accessories, put yourself in your customer's place. Ask if they satisfy—in design, material, finish, price—and whether the name of the company behind them inspires confidence.

Next, as a dealer, ask these questions: Will the manufacturer co-operate or compete with me? Will he sell *through* me, or just *to* me? Must I tie up capital in large stocks to secure the best discounts? Are the margins attractive? Can I get new stocks promptly? Will my customers get a square deal—and can I build up enduring relations?

Then study the Johns-Manville proposition on each of these vital points. The consumer already knows Johns-Manville—a National Institution. And every J-M Product must conform to J-M Standards—which means it will stand up in service.

The keynote of our sales program is co-operation with dealers through every channel to help move our goods. Our accessories are sold only to recognized jobbers and dealers, and discounts are generous, strictly maintained, and uniform, *regardless* of size of order. Our manufacturing facilities are ample, even for our big 1917 output—and J-M Responsibility backs each J-M Product to the limit.

So our accessory business is on a bed-rock basis. The products are right, and the sales policy is both equitable and practical. It's a profitable proposition for any dealer—and if you're not already on our list, we'd like to send you details. Ask your jobber about it, too.



Model 3000



Model 3006

JOHNS-MANVILLE SERVICE COVERS THE CONTINENT

MANVILLE

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40%
LONGER BATTERY LIFE

The Philadelphia Diamond Grid Storage Battery is used in 90% of all electric pleasure vehicles (as hard a field of Battery Service as any).

This remarkable predominance is due chiefly to two facts:—

1st—The electric pleasure vehicle is so dependent on its battery that it is essential to use the **best** battery obtainable.

2nd—The Philadelphia Diamond Grid Storage Battery has proved by countless tests that it **is** the best of all batteries.

The Diamond Grid Battery is destined to win the same predominance in the Starting Battery Field that it now holds in other fields. It has 40% longer life than other batteries. Read why on the following page.

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DIAMOND GRID

PHILADELPHIA STORAGE BATTERY

You get 40% longer life at no increase in price in the Philadelphia Diamond Grid Starting Battery—a broad statement, but if anything an **under**-statement of the truth.

The reason is very largely in the patented Diamond Grid.

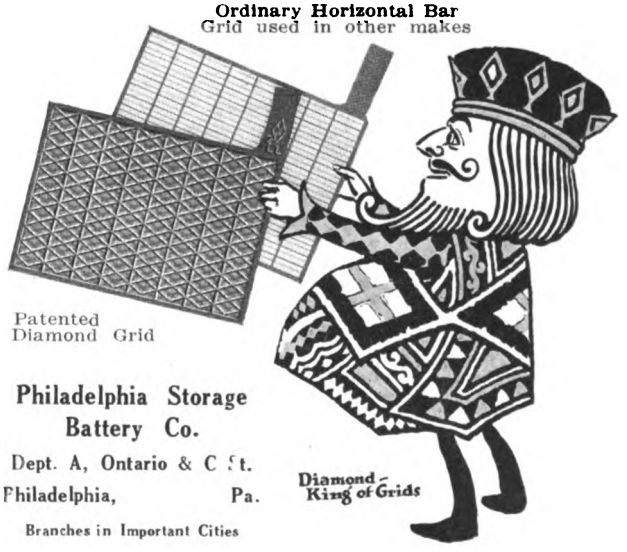
Look at the illustration below. Notice how the Diamond Grid is braced in every direction and how the active material is locked in place between the opposite and staggered sides of the grid.

Compare this to the horizontal bar grid in other batteries and you can't help seeing at a glance the superiority of the Diamond Grid.

The superior stand-up of Philadelphia Diamond Grid Plates against buckling and against any crumbling-off of the active material is the result of this exclusive Philadelphia Diamond Grid construction.

Note to Dealers:—

Heretofore we have not pushed the Diamond Grid Starting Battery intensively, because our enormous business in other types of batteries did not leave us with facilities for producing starting batteries in large quantity. Meanwhile, however, we have been perfecting the *quality* of the Diamond Grid Starting Battery and have made it prove that it is just right. Now our new factory gives us the needed capacity and we are going out to make the same record in the starting battery field that we have already established in other fields. We want you to line up with us *now*. We'll back you up with a better battery, better service and real selling cooperation. Write today for details of our proposition.



Philadelphia Storage Battery Co.

Dept. A, Ontario & C Sts.

Philadelphia, Pa.

Branches in Important Cities

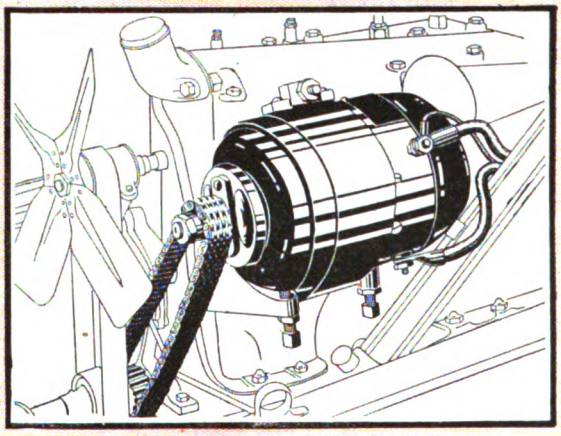
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Five Ford Models but only One Genemotor



Genemotor

"It Starts your Ford and Lights it too"



Can you sell Genemotors in your town?

One-half of all cars on American roads are Fords. There are over 1,750,000 Ford cars in service. The Ford Company manufactured 533,921 cars in 1916. They will produce 750,000 in 1917. Every Ford owner or prospective owner is interested in a reliable starting and lighting system—in GENEMOTOR.

The new chain drive GENEMOTOR weighs but forty pounds. It is simple, compact, powerful and sure.

A touch of the button starts your Ford. A turn of a switch lights the way. Ford owners cannot afford to be without the convenience of the GENEMOTOR or the protection of its lights. USL Battery standard equipment—Battery charges at slow speeds.

Built by the General Electric Company

Price $85 f.o.b. Lynn, Mass.

Sold Everywhere

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Five Ford Models but only One Genemotor



Genemotor

"It Starts your Ford and Lights it too"

GENERAL ELECTRIC COMPANY'S STARTING AND LIGHTING SYSTEM FOR FORD CARS

A. J. PICARD & CO.

MANUFACTURERS' AGENTS

1723 BROADWAY, NEW YORK

To Motor Car and Accessory Dealers, Garages and Service Stations:

You have a real money-making opportunity with practically no expense if you become a GENEMOTOR dealer.

I have a Retail Store and Service Station in New York City. I know your every problem and every trouble. I have had the same. I was the first to offer a starting and lighting system for Ford cars. All the experience and information which I gained have been put into the new GENEMOTOR.

I know it is the best starting and lighting system for Ford cars that has ever been offered. I stake my reputation on this.

GENEMOTOR is made by the General Electric Company, the world's Electrical Specialists. Isn't that guarantee enough of the worth of the GENEMOTOR? It can be installed in less than five hours. You will need a wrench, hammer and screw-driver and pliers. Isn't that simple?

I sell GENEMOTORS at retail in New York City—I instal them at my Service Station. I say it is profitable—I know. Won't you write me today?

Sincerely yours,

A. J. PICARD & CO., Inc.



President.

A.J. Picard & Co. 1723 Broadway N.Y.

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"We want your O. K. on our brakes before we go"

Educating Motorists to ask dealers' advice on brake lining

We aim to increase your brake lining business by educating car-owners to say this every time they leave a garage. We are showing them why they should reline their brakes with efficient brake lining if there is any slip or grab.

We are teaching them to insist on 100% efficient brakes. In our advertisements now running in the Saturday Evening Post, Collier's Weekly, Literary Digest, Christian Herald, Country Gentleman, Life, and motor publications, with nearly 4,000,000 readers—we are teaching motorists to *be sure of their brake lining* and to specify Thermoid Brake Lining. This means an increased demand for Thermoid Brake Lining which *you* will feel.

Proving Thermoid Brake Lining's Quality

We are proving the quality of Thermoid Brake Lining by listing in our advertisements the twenty-two leading cars and ten leading axles which use Thermoid Brake Lining. Motorists are sure to specify the brake lining that *experts* specify. Many motorists are going to come to you and specify Thermoid. Be ready for the demand.

We will send you free illustrated price lists and a store sign that will tell your customers you handle Thermoid Brake Lining.

THERMOID RUBBER CO., Factory and Main Offices, TRENTON, N. J.

Branches: *New York, Chicago, San Francisco, Indianapolis, Detroit, Los Angeles, Philadelphia, Pittsburgh, Boston, London, Berlin, Paris*

Our Guarantee—Thermoid will make good or WE WILL



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Selling POWER

You dealers in automobile lubricants are selling POWER. You are also building BUSINESS.

If you *knew* you could sell a kind of lubrication that would give your customers *MORE POWER* you *know* you could build a *reliable, solid, permanent business.*

DIXON'S GRAPHITE Automobile LUBRICANTS



are that better kind of lubrication. We can and will *demonstrate* that fact *anywhere, any time* to the complete satisfaction of any dealer.

Not every *motorist* agrees that Dixon's are *better* lubricants. There's a reason. Motorists who disagree simply don't know Dixon's. Every motorist who *knows the facts* uses Dixon's and every dealer who *knows the facts* sells Dixon's.

Selling Dixon's Graphite Automobile Lubricants is an educational proposition. This is what we are doing to educate the motorist. We have a force of specialty men who go into the towns where Dixon's are not known. They SHOW the dealer. They prove the FACTS. Then they go right after the motorists in that town and DEMONSTRATE the FACTS. Given a fair chance they always prove their case.

Dixon Advertising supplements the work of Dixon demonstration. We break the ice and get a good, clear stream for you to navigate in. When we have done our full share we leave a fine campaign of local advertising for the progressive dealer to cash in on.

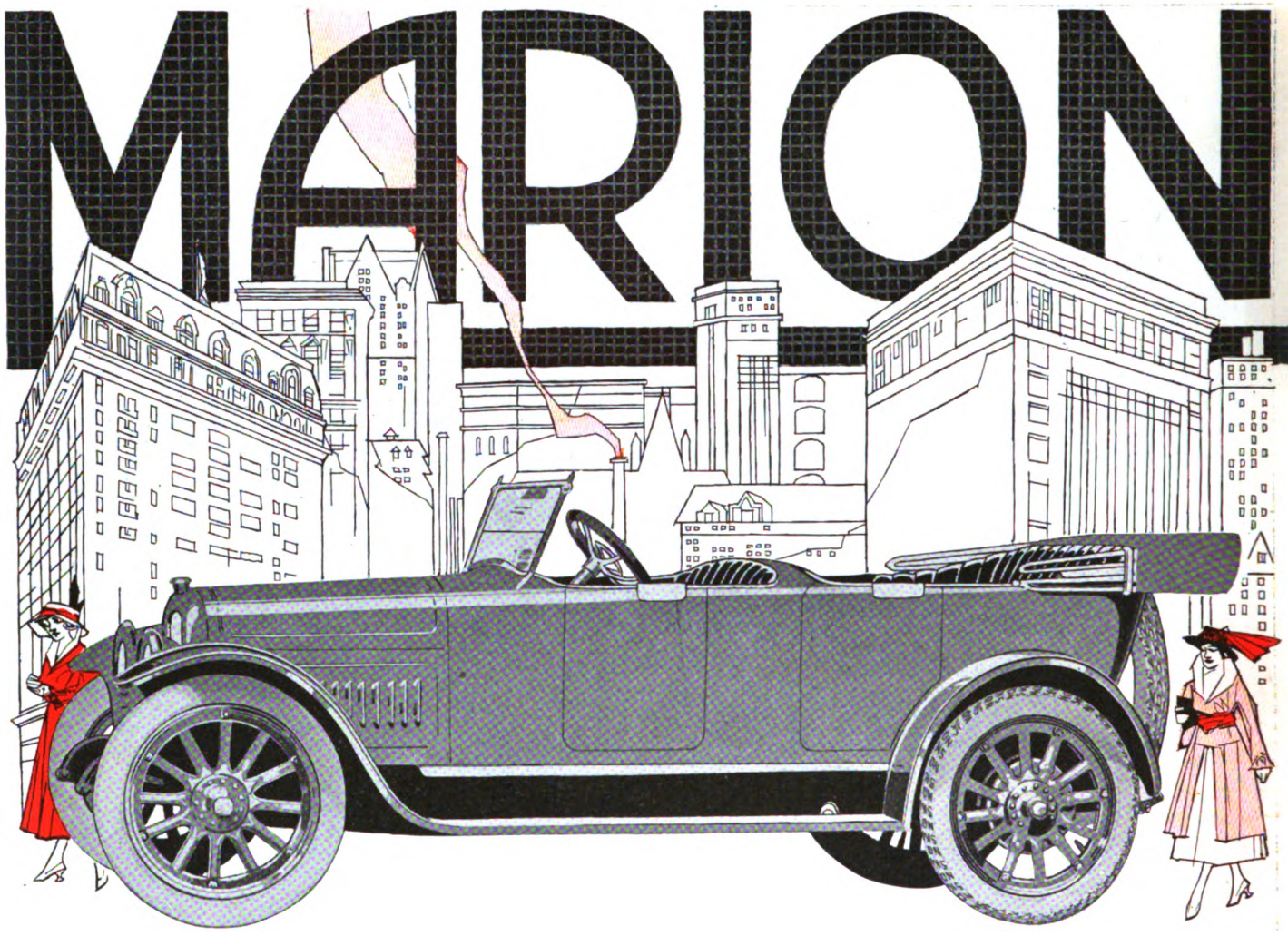
Do you *want* to sell MORE POWER?

Do you *want* to build a SOLID BUSINESS?

Write to us for Dixon's Dealer's Deal.

JOSEPH DIXON CRUCIBLE CO.
Jersey City, N. J.
Established in 1827

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ADD THIS SPLENDID

The demand for popular priced sixes is increasing.

Get set for your share of this demand and supply it with Marion-Handley, the Six Pre-eminent.

There's a lot of folks who are "going to buy a better car" this spring—a whole lot of them.

And you can't show them a better six in its class than the Marion-Handley—from any viewpoint your customer holds—

Beauty, Finish, Power, Comfort, Style, Individuality, Convenience.

The Six-sixty has the famous and powerful Continental 60 H. P. Motor.

The Mutual Motors Company

MARION-HANDLEY

Jackson, Mich.

J. I. HANDLEY, Pres.

Six-Forty, $1275

120-inch Wheelbase. 4-inch Tires

7 Passenger. 4 Passenger Roadster

Digitized by Google

HANDLEY



SIX TO YOUR LINE

Everything else of equal quality. 125″ wheelbase, 35 x 4½ tires. Seven passenger. (Full particulars in catalog.)

The Six-forty has the dependable Reutenber high speed 40 H. P. Motor. 120 inch wheelbase. Seven passenger.

Then there's the snappy Six-forty four passenger roadster that gets the roadster fan.

You've been thinking sixes. It's time for action. Thoughts won't get the money. Action will.

Tie in with us. We'll treat you right, and show you some real money in a line of real sixes.

Investigate anyhow!—NOW!

Six-Sixty, $1575
125-inch Wheelbase. 4½-inch Tires
7 Passenger

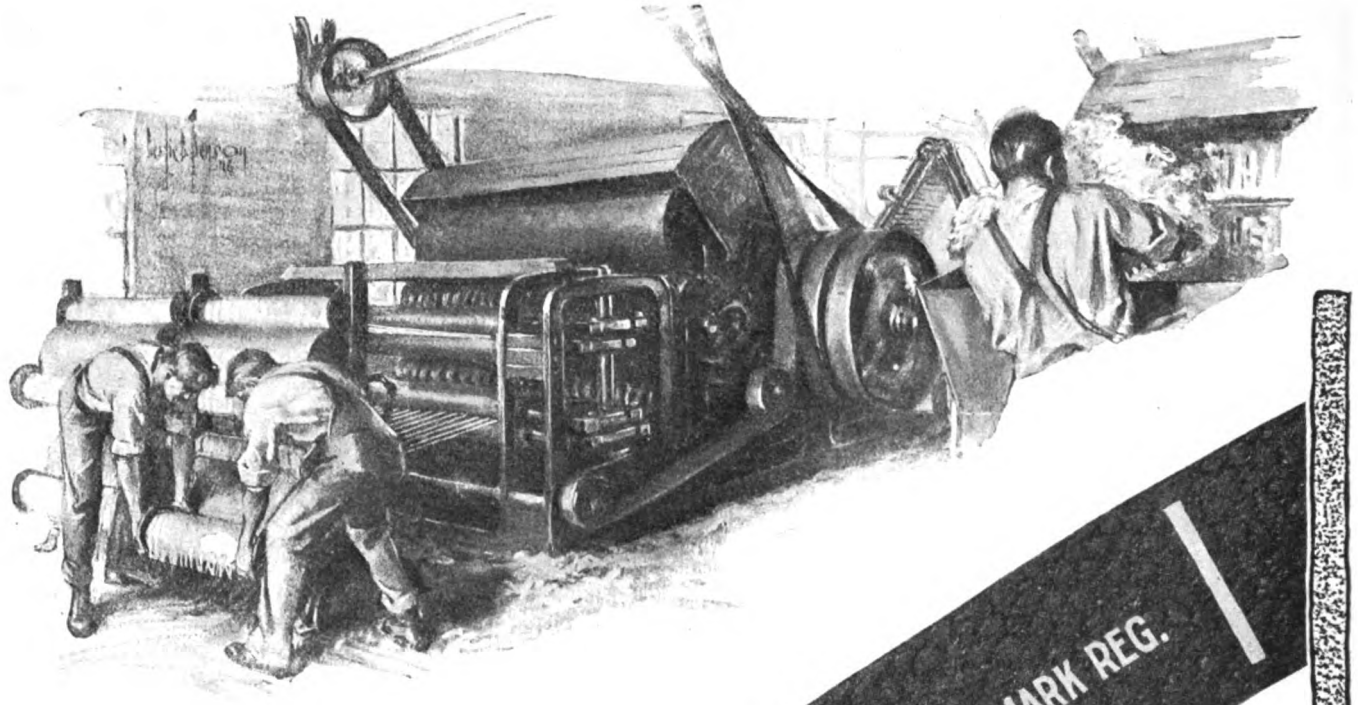
The Mutual Motors Company

Jackson, Mich.

J. I. HANDLEY, Pres.

MARION-HANDLEY

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Converting Asbestos Fibre Into Yarn

MULTIBESTOS TRADE MARK REG.

One of the most important steps in the production of MULTIBESTOS brake lining is the spinning of the asbestos yarn.

When the asbestos rock is crushed the fluffy mass of loose fibres is put into a picking machine which combs out the material and works the fibres all in the same direction.

These combed out fibres are then placed in carding machines which are almost human in their motions. By a system of rollers operating in a side to side motion as well as revolving, the fibres are twisted between the fingers. The huge machine-fingers of our fleet of carding machines turn out daily a quantity of 3,000 lbs. It takes all of this to meet the demands of our weaving department where thousands of feet of Multibestos for brake lining and clutch facings are made daily.

There is still another process in spinning the yarn before it will pass the quality test. This and other features in the production of Multibestos will be described in subsequent advertisements in this paper. Watch for these descriptions and you will learn the why of Multibestos supremacy.

STANDARD WOVEN FABRIC COMPANY
WALPOLE, MASS.

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Over 40,000 Sold in January!

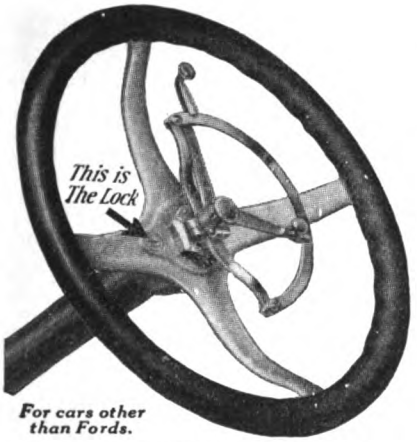
How's that for a record on sales? Over 40,000 "Perry" Locks ordered by our dealers during January alone. And all indications are that February will prove to be a far bigger month for our dealers.

Nothing succeeds like success! And nothing builds sales so fast as the right goods at the right price. The "Perry" has proven such a record-breaking success that January meant no less than

$250,000 for Perry Dealers!

Did you get your share of this new business? Are you lined up to take advantage of our big advertising campaign and the greatest selling automobile lock ever put on the market?

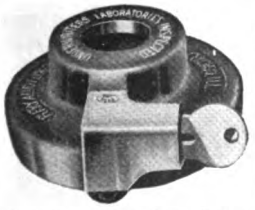
A Thief-Proof Lock For Every Car



For cars other than Fords.

The **"Perry"** fits every make of car. Can be installed by any mechanic in 15 minutes. Does not interfere with or change any of standard parts of steering gear. Absolutely safe to drive when unlocked. And no one can drive or tow a car when "Perry Locked."

For Fords—$5.00



Fastest selling Ford specialty the trade has ever seen. Greer Automobile Co. sold 95 of the first 100 inquiries. Lock replaces standard Ford cap on planetary housing below steering wheel. Liberal profit to you. Write today for prices.

Write us quick if you have not already secured an agency for the **"Perry."** You will find that every car owner in your town, regardless of present equipment, is a sure prospect for the

"PERRY"

The Only Lock That Thieves Can't Beat

Just turn the key and the steering wheel is disconnected. No possible way to steer the car. It cannot be driven or towed away. Approved by insurance experts as *the only lock that thieves can't beat.* 80% reduction on insurance for cars that are "Perry Locked." The lock is positive—and cannot be broken, picked or got around. The car is always *there* when you come back.

Write for Dealers' Terms!

Our proposition is a big money-maker for live dealers. A few fine territories still open. Write quick for terms and inside prices. Make all the installations possible before the spring season opens up.

The Perry Auto Lock Company

Dept. E-5

1238 Michigan Blvd.,

CHICAGO

Mail the Coupon

"Tell Me About It"

Perry Auto Lock Company
Dept. E-5, 1238 Michigan Blvd., Chicago, Ill.

Gentlemen: I have read your description of your "Perry" Auto Lock and would like to know about your special proposition to dealers.

I sell ..... *car*

Name .....

Address .....

Town ..... *State* .....

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THE SIOUX WAY

—is the Easy, Quick and Profitable Way to Grind or Cut Valves and Reface Valve Seats



Pat. Feb. 17, 1914. Other Patents Pending.

THE "Sioux" way is the new way. By this modern method you can reface a valve or valve seat in *one-twentieth* the time it took by the old laborious grinding method.

And the work will be done *right*—the valve face will be even, smooth, at an accurate angle and perfectly centered. All this we *guarantee*.

It's all so simple that you don't have to put an expert mechanic on the job. Each job will cost you so little that you can charge much less than you ordinarily have to charge for a regrinding job and still get out with a big profit.

Your customers will be so pleased with the work and the small price for which you can do it, that you will soon find yourself with a steady paying business in this line.

There is no chance of shattering valve or spoiling valve seat with a "Sioux" tool.

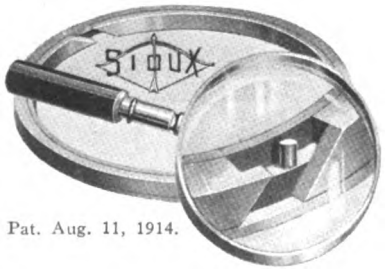
The price of a "Sioux" Valve Tool Set is so small that two jobs will pay for the outfit.

You can get this full set, or the "Sioux" Refacing Tool or any of the other individual items from any live jobber.

Write for illustrated circular containing full description.

Sold by all live Jobbers. Manufactured Only by

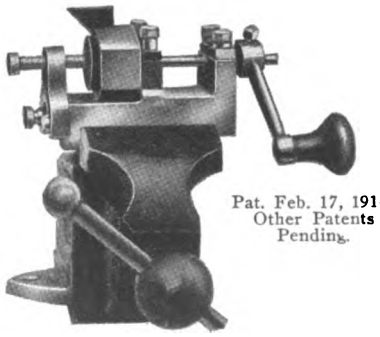
Albertson & Company, Sioux City, Iowa



Pat. Aug. 11, 1914.

Sioux Piston Rings

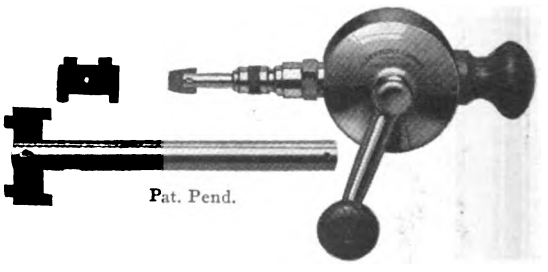
High compression—most efficient and reliable made. Guaranteed against breakage—also to hold compression and still pass oil enough to lubricate rings at any speed.



Pat. Feb. 17, 1914. Other Patents Pending.

Sioux Refacing Tool

Accurately cuts any valve from one to 2½ inches diameter. We make 30, 45 or 60 degree cutters.



Pat. Pend.

Sioux Valve Grinder

Produces the reciprocating motion that is absolutely necessary for perfect valve grinding. Ball-bearing—easy action. Best materials and accurate workmanship make it serviceable and durable. Furnished with five driving points.

Digitized by Google

Selling 80 Cars in Six Months in a Town of 5000 People is Pretty Good for a Starter

But that's what Snyder and Friesen did out in Fairbury, Nebraska, when they started to sell Moon Automobiles. They had been doing well before—but were having trouble in expanding their business, because the gigantic factory which furnished their cars had other agencies, scattered in a circle around them, which hedged them in. There seemed to be no way for them to grow unless they made a decided change.

They knew that Moon Cars were not turned out in vast numbers, but that they were the frequent choice of discriminating buyers in the larger cities and towns—and though a higher priced machine, were recognized as exceptional value.

Snyder and Friesen increased their business as soon as they "took on" the Moon—and now they have a chance to grow just as big as their ability. That their new policy has been successful is, of course, beyond question. A record of 80 cars going out of a town of 5000 people in six months' time is remarkable.

Many more dealers, disappointed in their restricted territories, have turned to Moon Cars and are today sharing in our constantly increasing success.

Moon Cars are worth the prompt investigation of every ambitious dealer.

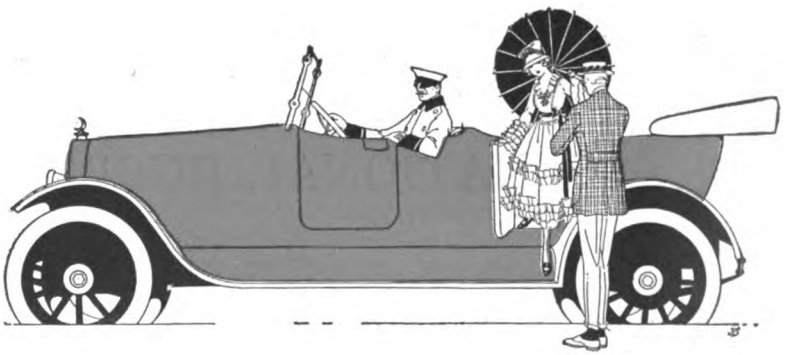
Correspondence with our Sales Manager relating to agency changes, is, of course, considered strictly confidential by this company.

MOON CARS

SIX-43 TOURING CAR $1295	SIX-43 ROADSTER $1295	SIX-43 CABRIOLET $1950	SIX-66 SEDAN $2350
SIX-66 TOURING CAR $1690	SIX-66 CLUB ROADSTER $1690	SIX-66 CABRIOLET $2250	SIX-66 COUPE $2250

Fully equipped—f. o. b. St. Louis—Prices subject to change without notice.

MOON MOTOR CAR COMPANY ST. LOUIS, U. S. A.



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National Speedway Tires

Unprecedented Demand Built This Factory

Here in the new sunlit NATIONAL plant—we are not handicapped with obsolete facilities or old time ideas.

Our buildings are new. Our entire equipment and machinery is new.

It is the finest and most modern money can buy. Everything is up to the minute.

Every known method of securing full maximum efficiency has been adopted.

With such modern facilities it would be possible for us to turn out many more tires each day than we do.

Yet we prefer to go slow.

We prefer to give to each *"Speedway"* tire the careful individual workmanship and rigorous inspection that will insure its delivering mileage well in excess of its guarantee.

As a result all *"Speedway"* tires consistently deliver their full quota of mileage.

Car owners are finding that they can confidently depend upon any *Speedway* Tire to give *uninterrupted* service until at least 5,000 miles has been received.

Speedway tires are made in the Non-skid only.

This is because the Speedway Non-skid is as smooth riding as a plain tread.

Yet there was never a more perfect Non-skid made. There are no knobs in the tread, no bumps nor lumps, nor depressions, to cause *inside fabric strain and wear.*

5000 Miles Guaranteed

The contact of the tread with the road is smooth and continuous.

The tire is able to wear out naturally before the carcass "gives out" because of inside fabric wear.

Let your next tire be a *"Speedway"* and see for yourself that there is really such a thing as "Tire Luxury at a Moderate Price."

You will be surprised at the low cost mileage you will secure.

Speedway Tires are not as yet for sale in all cities. If your dealer cannot supply you, write direct.

DEALERS—JOBBERS

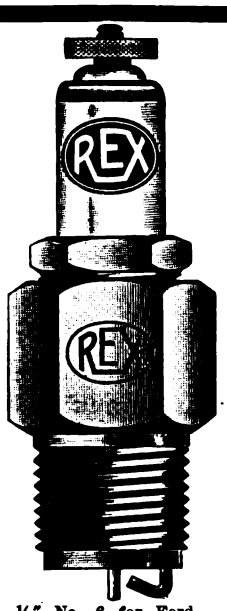
Write for full particulars regarding the new National Sales proposition, discounts, etc.

More than one big tire dealer has made *more* money with the National line.

Get an idea of what we can do for you. The plan is well worth investigation.

NATIONAL RUBBER COMPANY
POTTSTOWN PENNA.

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½" No. 6 for Ford Overland—Studebaker

Dealers of New England

know the value of a line of merchandise that satisfies the exacting requirements of their trade and at the same time pays a profit that makes the business worth while.

Dealers in New England, and merchants the country over, know that the spark plug of supreme merit, that gives unfailing satisfaction under all motor conditions, and at the same time the **margin of profit** that a going business requires, is



⅞ Regular

REX



No 36-⅞ MICA. LION DE LUXE.

We **earn** the reputation of quality in our factories, where every operation in the manufacture of a spark plug is reduced to the precision of a science.

Every part—shell, porcelain, electrodes, gaskets, etc.—is as fine as engineering science can make it. And the parts are put together in a way that makes REX the finest quality spark plug.

Choice raw materials, scientific designs and perfect manufacture—no manufacturing organization can do more—and none can do it better than we.

Therefore, in building our business on this basis, we feel we have done the merchants of our industry a substantial service. For with REX Plugs every dealer can have the moral assurance of selling the highest class product at a price that gives the customer satisfaction and leaves a **real profit** on every sale.

We talk to New England dealers in this ad, but our proposition appeals to every dealer in the United States.

We ask live merchants to write us now, and by return mail we'll show you how to make *more* and *better* spark plug profits.

IGNITION CABLE

Our proposition on Ignition Cable swept the boards during 1916. A word on a postal brings the story. Why not write before you turn this page?



No 35-⅞ LION EXT.

REX IGNITION M'F'G. CO.

58th St., Broadway and 8th Ave., New York City

BRANCHES: PHILADELPHIA CHICAGO SAN FRANCISCO

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DIAMOND "T"

Our Organization

The Diamond T factory organization has at its head C. A. Tilt, whose enviable reputation as a motor car and truck manufacturer is known throughout the entire field.

Around him gravitate a corps of well-trained engineers, a production management second to none in the industry, a thorough traffic department and a competent sales force.

The Diamond T Company has been in existence over eleven years. It has not been organized over night for the purpose of selling stock. In it is found everything that sound business men demand.

Efficiency is its keynote. No man does less—none more—than he should. Waste has been eliminated.

All of which means an economy that offers additional profits for Diamond T dealers, and greater satisfaction and better service to Diamond T users.

Our Trucks

Mr. Tilt's ideal was to produce a truck that was serviceable, economical and dependable—a truck that is fit from every standpoint for the present day requirements of commercial hauling.

The unqualified endorsement of every one of its users tells its own story of the realization of that ideal.

The fact that Diamond T Trucks have so conclusively proved their worth to organizations where the utmost in present day efficiency methods are employed and where the individual performance of every truck is closely checked, so as to cause them to re-order in quantities from 1 to 40, we believe is the highest recommendation that can be offered.

Under the severest tests, with the hardest usage and even abuse, Diamond T Trucks have proved beyond question their unbeatable dependability and economy of upkeep.

FIVE SIZES
1 ton, 1½ ton, 2 ton, 3½ ton and 5 ton.
WORM DRIVEN

DIAMOND T MOTOR CAR CO. DIAMOND CHICAGO. ILL. U.S.A.

DIAMOND "T" MOTOR CAR COMPANY

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Motor Trucks

Our Advertising

Until a point in production had been reached where greatly increased business could be taken care of, no extensive advertising was done by the Diamond T Motor Car Co.

Now we are ready to tell our story to the commercial world. Greatly increased factory capacity enables us to insure prompt delivery on any number of trucks.

Thousands of dollars have been appropriated for an extensive co-operative dealer advertising campaign.

Advertisements are prepared especially for our dealers to run right in their own territory. The advertisements for each locality show how Diamond T Trucks solve the problems that exist there.

The tremendous results our dealers have received from these advertisements wherever they have appeared, bears testimony to their effectiveness.

Our Dealers

Diamond T dealers are selected with the greatest care. They must be progressive dealers—dealers who have the ability to do and who are alert to the wonderful opportunities the Diamond T line offers them.

Back of them is an organization that offers service in prompt deliveries and co-operation.

They are selling a truck whose merit has been proved—a truck whose upkeep economy and dependability are matchless in the motor truck field.

Their recognized superiority, as well as the high quality service offered by the Diamond T Company and Diamond T Dealers, is causing an ever increasing demand for these trucks.

Investigate our dealer proposition at once. Let us show you unequalled opportunities for the Diamond T line that exist in your locality.

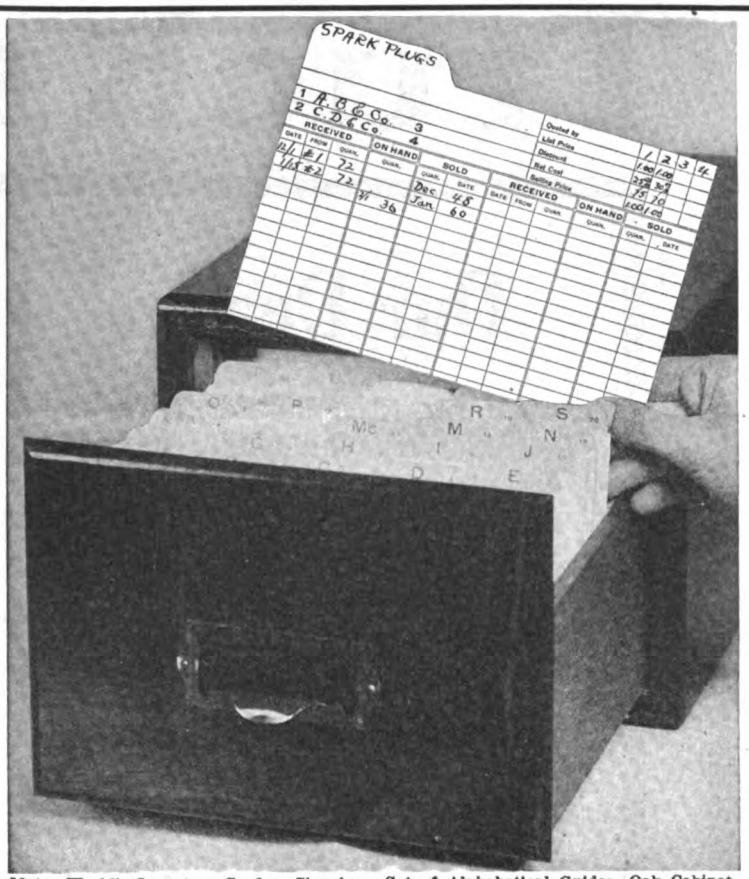
410-412 W. Superior St. Chicago, Ill.

DIAMOND T MOTOR CAR CO. DIAMOND CHICAGO. ILL. U.S.A.

Deliveries Guaranteed

On the Day Promised Your Truck Will Be On Your Sales Floor

Digitized by Google



Motor World's Inventory Cards. Size 4 x 6, $1.00 per 100; $9.00 per 1000. Size 5 x 8, $1.25 per 100; $12.00 per 1000. Outfit 46A, consisting of 500 Cards, 4 x 6. Set of Alphabetical Guides, Oak Cabinet, Complete, $8.75. Outfit 58A, consisting of 500 Cards, 5 x 8, Set of Alphabetical Guides, Oak Cabinet, Complete, $11.00.

Here *You* Have It!

A complete record of your stock of materials and accessories on hand. This Motor World's Inventory and Perpetual Stock Record Card shows you, in a jiffy, the condition of your stock of any article on hand—what it costs, its selling price, how many bought, how many sold, and the balance on hand.

This system is essential to good business methods. YOU should have it. NOW is a good time to install the Motor World's Stock Record System. ACT AT ONCE. This System pays for itself.

Send Check or Money Order to

A. Bobbe & Company

Exclusive Authorized Manufacturers of Motor World's Card Systems.
Special Systems designed and manufactured to order.

320 Broadway New York City

You Ought to Know Why—

Motorists have learned that they get full gallons of pure, clean "gas" and get it quick from

Wayne Honest Measure Pumps

They patronize Wayne-equipped garages in preference to all others. Wise garage men are realizing this and are rapidly installing Wayne outfits. Here are a few of the many exclusive features that account for WAYNE popularity:

CONTINUOUS STROKES: No backward cranking is required.

SPEED: THE WAYNE MONARCH pictured here throws 5 gallons in 15 seconds.

DISCHARGE REGISTER: Big clock dial shows customers plainly the number of gallons discharged.

PERFECT METER: Positive drive, operated by cog rack, absolutely sure to record every drop of gasoline that passes through pump.

HOUSING: Circular steel, unbreakable, weather proof. Doors telescope, require no more room open than closed, are counterbalanced, automatically operate light dome at top.

VALVES, CASTINGS: All valves are solid brass. Castings, gray iron and all coming in contact with "gas" are galvanized. Suction and discharge pipes are galvanized steel. Complete rust-proof line for gasoline.



WRITE NOW for interesting literature describing these and other Wayne features in detail. A postcard will bring you particulars

WAYNE OIL TANK & PUMP CO., 508 Canal Street FT. WAYNE, INDIANA

Digitized by Google

There Is No Other Motor Oil Like This!

—Without question the most efficient motor oil on the market.

—Made by special process from Premium Pennsylvania Crude.

—Carefully refined and thoroughly filtered.

—Absolutely free from chemical treatment.

—Highest fire test—lowest carbon content (16/100 of 1%).

—Guaranteed to the limit.

Autocrat MOTOR OIL

—The same absolute guarantee holds good for Ebonite.

—Ebonite is a heavy-body, all-petroleum lubricant.

—Will not drip, run, dry, cake or separate.

—One filling lasts a season.

—Specially refined from Pennsylvania's highest priced crude ("Franklin Heavy Crude").

EBONITE FOR TRANSMISSIONS

BAYERSON OIL WORKS **ERIE, PA.**



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TORIT 6300

If You Repair Automobiles

investigate the TORIT torch Efficient and Reliable



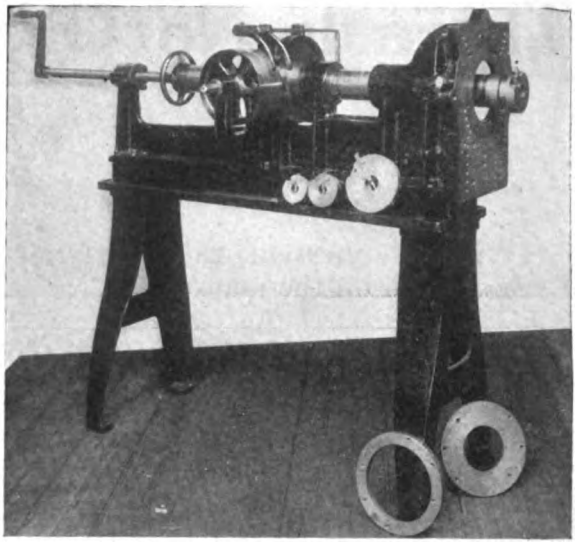
A TORIT Welder will prove a Money Maker and a Business Getter

Ask for Catalog "M"

Manufactured by

The Evleth-Lindsay Co.

St. Paul, Minn.



The Marvel Cylinder Re-boring Machine

Fully meets the requirements of the large and small repair shop where high-class and efficient work is demanded.
Is a machine (not a tool) of the highest order, power or hand driven.
Produces a class of work that makes firm friends of every customer. Satisfied customers bring others.
Is simple, easy to adjust, speedy, accurate and can be successfully operated by anyone familiar with machine tools.
Re-bores scored, glazed and welded cylinders, or those worn out of true.
Successfully re-bores any type or size of engine block from one to twelve cylinders, and from 2¼" to 8" in diameter.
Re-bores any ordinary four-cylinder block in less than two hours.
Re-bores accurately down to the fractional part of a thousandth of an inch.
Re-bores cylinders to a perfect, true circle.
Quickly pays for itself. Brings Dollars' worth of business never touched before.
Price is within the reach of every garage and repair shop.

PRICE, TERMS AND FULL PARTICULARS

Marvel Machinery Company

Dept. No. 9, 609-12 Boston Bldg. Minneapolis, Minn.

The Modern Motor Car

By H. P. MANLY

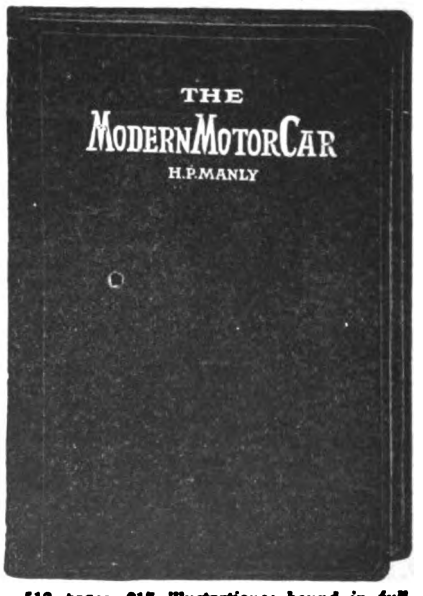
An Up-to-the-Minute Book on the Automobile

EVERY man who drives, owns, repairs or stores an automobile needs it. It is the most illuminating and instructive work of its kind that has so far been offered to the motoring public. It will serve the novice as an indispensable text book and the expert as a reference work of constant value.

It is a book that is most aptly named, for it treats exhaustively of the mechanics of the automobile right down to the eight-cylinder model. Its treatment is authoritative, too—the author immediately gives the impression of complete mastery of automobile design and construction—yet this hitherto complex subject is explained in the simplest terms and the most graphic English, that creates the right picture in the reader's mind even before the illustrations are consulted.

The electrical sections are particularly interesting and instructive. Beginning with an explanation of electricity as adapted to the motor car, the author carries his reader along rapidly and smoothly through its direct application to starting, lighting, ignition and control in a way that divests the subject of its mystery, and at the same time shows the vitally important part electricity has taken in the development of the automobile.

It is complete, authoritative, splendidly written, illustrated and printed; its physical appearance makes it worth a place in any library, and its contents have received the enthusiastic endorsement of some of the most enlightened writers on motoring topics.



512 pages, 217 illustrations; bound in full leather, flexible covers.

A Few of the Things for which Simple Directions are Given

Adjust any make or model of carbureter. Put electric machinery together right. Make a noisy engine run quietly. Trace wiring and locate breaks. Time poppet, sleeve or rotary valves. Locate grounded, short circuited or worn wires. Keep transmission from coming out of gear. Locate starting and lighting trouble by looking at the ammeter. Wire any make, type, age or model magneto. Clean a cooling system while on the car. Wire master vibrators. Scrape bearings. Time a magneto. Restore scratched cylinders. Adjust vibrators. Vulcanize tires. Stop water leaks. Regulate a cut-out. Charge batteries. Fit piston rings. Find the polarity of wires. Test engine oils. Make battery liquid.

Some New Ideas

Electric lighting and starting. Vacuum fuel feed. Rotary valve engines. 1915 magnetos. Electric brake. Carbureter heating. No history. No out-of-date work. No padding. Eight cylinder engines. Edison storage battery. Directions for oiling daily, weekly, semi-monthly and each 1,000 and 2,000 miles. Two-point ignition. Sleeve valve engines. 1915 carbureters. Electric gearshaft. Kerosene, alcohol and benzol fuels. Instructions in detail for 32 models of carbureters.

Sent Prepaid on Receipt of Price

$2.50

Book Department, THE CLASS JOURNAL COMPANY, 239 West 39th St., New York

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This Is the Plug



Have You This Plug On Your Car?

These Are the Manufacturers Who Equip With AC

The Standard Spark Plug of America

Cadillac	Oldsmobile	McFarlan	Moreland Trucks
Pierce-Arrow	Jeffery	Westcott	Pilot
Packard	Kissel Kar	Lexington-Howard	Singer
Marmon	Premier	Brockway Truck	Stephens
Hudson	Knox	Chase Truck	United Truck
Chalmers	Jordan	Daniels	Wilcox Trux
Hupmobile	Liberty	Federal	Signal Trucks
Chandler	Crane-Simplex	G. M. C.	Republic Truck
Haynes	Stearns Knight	Gramm-Bernstein Trucks	Sterling Truck
Chevrolet	Saxon	Murray	Sandow Truck
Dort	Stutz	Bour-Davis	Gabriel Truck
Cole	National	McLaughlin (Canada)	Diamond T Truck
Reo	Velie	Scripps-Booth	Pathfinder
Paige	Jackson	Monroe	Abbott
Peerless	Apperson	Netco Trucks	Anderson
Dodge Brothers	Davis		American-La France
Buick	Detroiter		Four Wheel Drive
Oakland	Paterson		

Accept No Plug Unless AC Is Burnt into the Porcelain

Sold Everywhere

No Greater Recommendation Can be Given a Spark Plug

Champion Ignition Co. Flint, Mich.

Gemco End Thrust BUMPERS

MILWAUKEE

AN EASY WAY TO DOUBLE SALES

Sell two bumpers every time instead of one. Car owners are quick to realize that they need a bumper on the rear end just as much as on the front.

And every car owner knows that it's cheaper to invest a few dollars in bumpers than to buy a pair of new lamps and a new fender every once in a while, to say nothing of having the car tied up for several days.

Ask your jobber about Gemco Bumpers, or write direct to

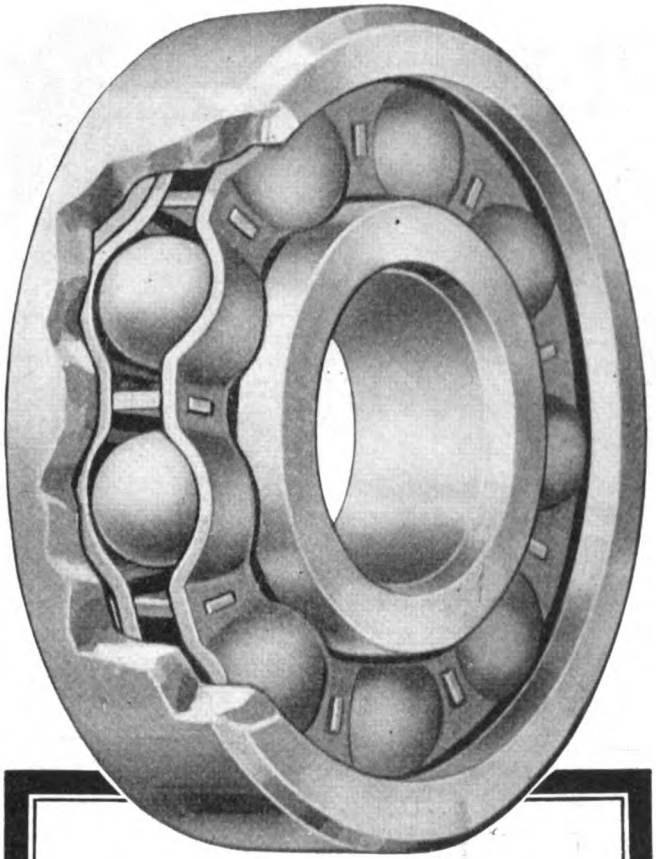
Gemco Bumpers pay a good profit **on every** sale. They are made **on the** correct End Thrust Principle, **with** channel or diamond **bars, to** fit all cars.

GEMCO MANUFACTURING CO.

756 So. Pierce St. :.: :.: Milwaukee, Wis.

Popular Automobile Accessories

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THE New Departure may not be the only ball bearing which gives satisfactory service in the highest types of automobiles but there is a reason why more New Departure ball bearings than any other are used in American motor cars.

The reason why the demands for New Departures have persistently increased, so that this company is the largest manufacturer of ball bearings in the whole world, can be summed up in one word—quality.

THE NEW DEPARTURE MFG. CO.
Conrad Patent Licensee
Bristol, Conn., Ford Bldg., Detroit

NEW DEPARTURE BALL BEARINGS

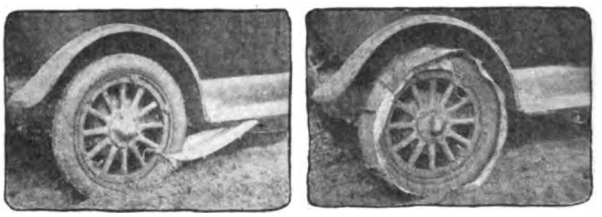
Haberstick's "WON'T LET YOU STICK"

makes its own Road-Puts Itself On

When you are in mud, sand, snow, ice, wet grass, etc. If, instead of heating up your engine and your tires and your temper—instead of spoiling your clothes and splattering up your car—and finally paying a team of horses $5 to pull you out, if you can go to your tool box and take out the "Won't Let You Stick"; slip the metal container into the cleats under your running board; tie the end ropes around the rim; start your engine—unwrapping a dry canvas road with heavy rope insertions at regular intervals—and see your wheels take hold and your car come out like a shot—you're lucky. It costs you only $6. Dealers write. Or postpaid on receipt of price.

Let Your Engine Do the Work
— No Jack Necessary —

AUTO ACCESSORIES COMPANY
WHEELING W.VA.



SELDEN TRUCKS — SELDEN — IN-BUILT QUALITY

Massive construction in a motor truck means power—strength—ability to give long, dependable, economical service.

Selden Trucks

are big, powerful trucks of massive, standard construction—made from the best materials obtainable. They keep on rendering profitable service when others give out.

DEALERS: The rapidly increasing demand for Selden "IN-BUILT QUALITY" Trucks opens up an opportunity for you. Get our Sales Proposition QUICK.

Selden Truck Sales Co.
Rochester, N. Y., U. S. A.

SELDEN TRUCKS — SELDEN — IN-BUILT QUALITY

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The EDGERTON MOTOR TESTER

Positively Eliminates the Uncertainties of Guesswork in Locating Motor Troubles

It is a Tool that Sells on Sight because it

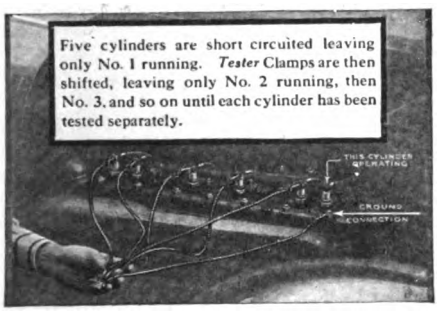
Locates instantly missing explosions
Weak cylinders
Knocking bearings
Leaking valves or pistons
Faulty valve or ignition timing
Makes carburetor adjustments easier
Diagnoses the exact working condition of each cylinder separately
Shows if motor is adjusted properly for running conditions
Burns carbon off the exhaust valve seats in a few minutes.
It is the greatest time and labor saving device of its kind

Made in two models for any number of cylinders; the twelve cylinder can be used for any motor of twelve cylinders or less and the same is true of the other sizes.

Everyone from the car owner to the expert factory adjuster needs it and should get it.

Write for Literature or Order Today.

R. G. EDGERTON & CO.
SUFFOLK, VIRGINIA



Patents Pending

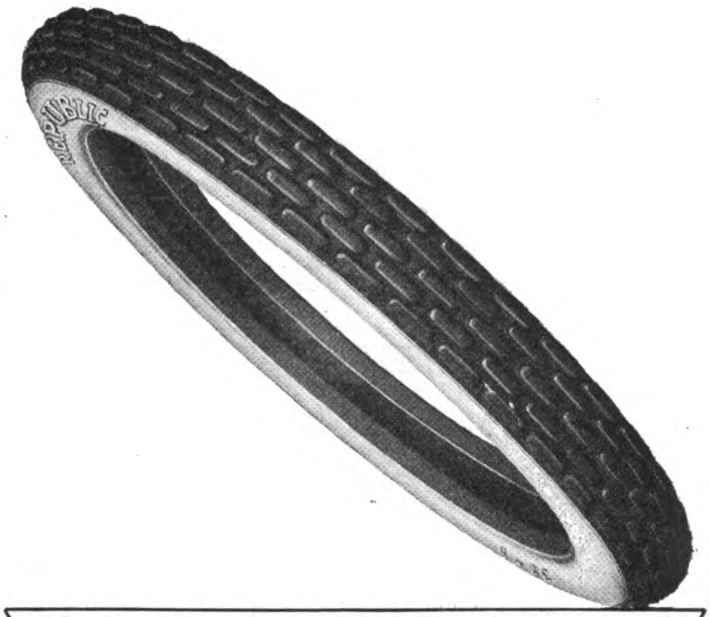
PRICES

Special
4 cyl...$2.00
6 cyl... 2.50
8 cyl... 3.25
12 cyl... 4.75

De Luxe
4 or 6 cyl. ...$5.00
8 cyl... 6.75
12 cyl... 9.50

Specify number of cylinders and model desired when ordering. Both models give same results, but the De Luxe is made heavier and will stand more abuse.





Better Tires For The Dealer

THE Prōdium Process has given Republic Tires an unequaled tread.

It has made them stronger and tougher and vastly increased their wear resisting qualities.

Republic Prōdium Process Tires are far superior to ordinary tires.

The dealer can stand behind them with certainty that they will make good in the hardest kind of service.

The constantly increasing demand for Republic Tires is your assurance of a growing business.

Republic Black-line Red Inner Tubes have a record free from trouble.

The Republic Rubber Company
Youngstown, Ohio

Made in the Famous STAGGARD, TRADE MARK REGISTERED U.S. PATENT OFFICE and Plain Treads

REPUBLIC PRŌDIUM PROCESS TIRES

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KEYSTONE SHOCK ABSORBER

Made to Give You The Worth of Your Money

Buy shock absorbers that are built for real service. They cost less in the long run.

The high quality and strong construction of Keystone Shock Absorbers make for smooth riding and long service.

KEYSTONE SHOCK ABSORBERS

are guaranteed not to break. They have unusually heavy, highly tempered springs, drop forged hanger bolts and lugs, and cross plates. They have extra long bearings. Their double cylinders with central pull prevents sidesway. They are beautifully finished in Nickle Plate and Black Enamel.

Price, per set, for all sizes....$20.00

Dealers and Jobbers who are interested in high quality accessories, which give satisfaction to their customers, should add Keystone Shock Absorbers to their line.

Manufactured by

STEEL CITY ELECTRIC CO.
1207-1219 Columbus Ave., Pittsburgh, Pa.





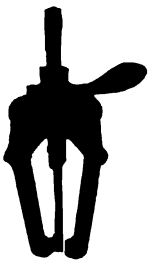
Removing Road Wheel. Large Jaws attached to Brake Drum. Note the Range 15 ins. diam.

1300 Now in Use

in New York and New England. Invented by expert mechanic and experienced garageman, it is the best tool on the market. Strong and well made, never out of order.

Quicker and Better

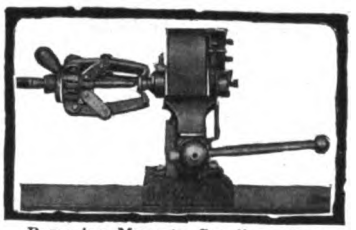
than any other tool for any number of jobs necessary in every garage. Built on principle of Universal Chuck.



COLLISON'S Universal Puller

(Patented)

Three 5½" jaws, three 7½" jaws, two 12" jaws. Capacity up to 17". Turning handle contracts and expands jaws. Makes rigid attachment. Can be used either with two or three jaws.



Removing Magneto Coupling. Note the Range 1-13/16 inch Diameter.

Garageman's Life Saver

in time of hurry and pressure of work. Removes wheels, gears, joints, couplings, wrist pins, straightens frames, etc. Satisfaction or money back.

Price complete, $20. 25% discount to Dealers and Garagemen.

Geo. A. Collison
Burlington, Vermont

Your Home Merchants will buy Henney Commercial Bodies for Ford Cars

The general merchant, dry goods merchant, grocer, hardware dealer, plumber, florist, farmer and dairyman will appreciate Henney Commercial Bodies.

To Show Them Is to Sell Them

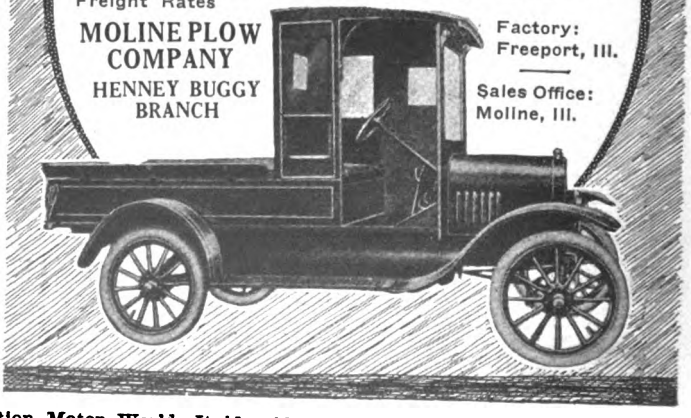
because they mean up-to-date delivery service at small cost. We have a very interesting agency proposition and some good open territory. Our catalog, free on request, shows full line of Henney Bodies. Address factory or nearest branch.

Our Many Branches Insure Prompt Service at Low Freight Rates

MOLINE PLOW COMPANY
HENNEY BUGGY BRANCH

Factory: Freeport, Ill.

Sales Office: Moline, Ill.



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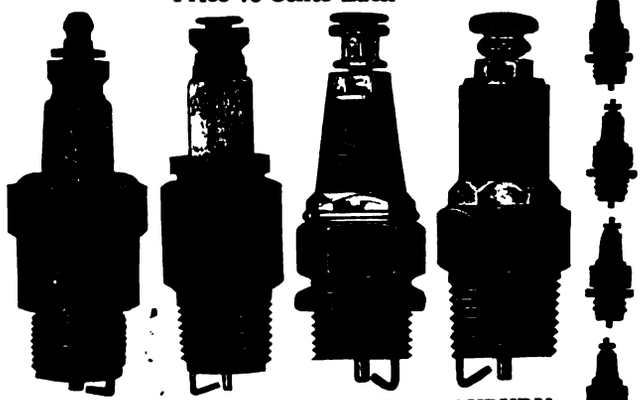
SPARK PLUGS AUBURN AIM REG. U.S. PAT. VALVE LIFTERS

LOOK FOR THE AIM BEHIND THE NAME

AUBURN VALVE LIFTER



Price 75 Cents Each



BLAZER Proto Insulation Price $1.00

AUBURN Porcelain 75 Cents

AUBURN Motorcycle Price $1.00

AUBURN Mica Price $1.00

Auburn Ignition Mfg. Co. AUBURN, N.Y. U. S. A.



The Inside Quality of Your Garage Is Judged by Its Outward Appearance

The building that by its mere attractiveness invites prospective customers to enter—makes them want to come in—is as valuable an asset as you can have in your business.

Midland Terra Cotta Puts the Card of Quality on Your Building

It is as big a drawing card for your business as electric lights and clean windows. It is inexpensive, absolutely fireproof, and unaffected by weather. It keeps your building clean-looking and bright.

Make your garage the most attractive in town. Build with Midland Terra Cotta. Portfolio of suggestions—FREE.

Midland Terra Cotta Company

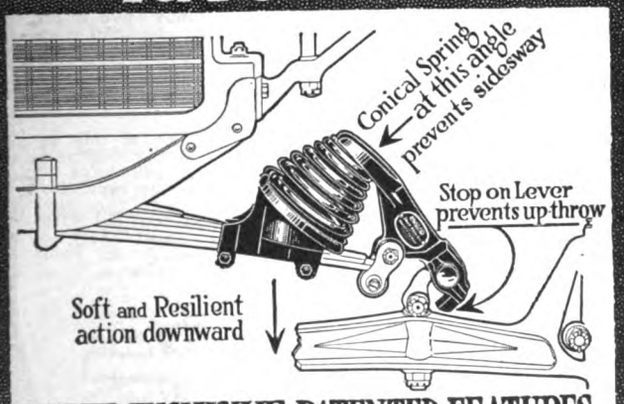
1515 Lumber Exchange, Chicago, Illinois



HASSLER

Shock Absorber

For FORD Cars



THREE EXCLUSIVE PATENTED FEATURES

"Recognized as the Best"

100000 FORD OWNERS RECOMMEND IT

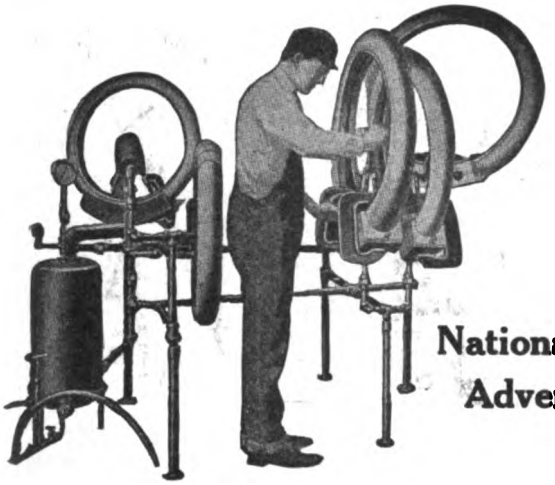
WRITE FOR DEALERS TRIAL SET PROPOSITION

Robert H. Hassler, Inc. Indianapolis, Ind.

$15 for a Set of Four

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Haywood's



Nationally Advertised

Tire Repair and Vulcanizing Service

In these days of high tire prices, the tire repair business is getting bigger and better than ever, as motorists learn the method of true tire economy. Why not cash in on this opportunity? Put in a Haywood Tire Repair Plant. Link up with a nationally advertised tire repair service. Six years of Haywood's advertising has standardized the Haywood method.

The Sign of the Man and Machine

—is the connecting link between the tire repair man and the automobile owner. It chains the established trade of hundreds of customers to your business. It connects your shop with a national tire repair service—a standardized service—a service that motorists know absolutely to be economical, practical and efficient.

The Haywood System

—is scientific—a true system of conservation of tires—a system that saves motorists thousands of dollars on tire bills. It means repairs that are lasting—vulcanizing that holds—repairs that are solid as the original tire itself, insurance to motorists of no regrets on the road.

Haywood's Tire Repairing and Vulcanizing Plants

The Haywood Plants are complete, all in one unit—are easily operated—no experience necessary. Here is your opportunity to make big money—to add hundreds of dollars in profits a year to your business. Occupies only a small part of your shop—can stand right out in the open where your customers can see it—a constant reminder to keep their tires repaired. Your shop equipped with a Haywood Plant is the motorist's logical haven for tire repairing. It completes your service—a service that customers like—a service that brings and holds business at big net profits.

Write for New Catalog

Use a letter, or post card or simply send the coupon below. This brings the big book of facts—tells all about tires and how to repair them—shows outfits in use—gives proof of successes—shows how we co-operate with plenty of advertising and plenty of help—how you link up with a national service. Book gives complete details. Write today. Don't delay.

The Haywood Tire & Equipment Co.
1042 N. Capitol Ave., Indianapolis, Ind.

Haywood Tire & Equipment Co.,
1042 N. Capitol Ave., Indianapolis, Ind.

Gentlemen: Please send me full particulars of your national service of tire repairing and complete catalog and information of Haywood Tire Repair Plans.

Name .....

Address .....

.....



WITHOUT heat, tools or experience, the motorist who carries a roll of Everloc with him can permanently repair any puncture or blowout up to 17 inches in length.

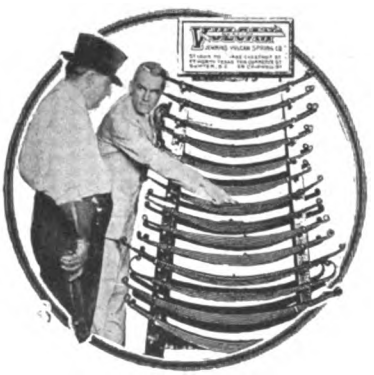
This practical, self-vulcanizing tire patch is guaranteed never to rot or dry up—never to leak or creep. Air pressure and road pressure vulcanize Everloc into a part of the tube itself. Insist on Everloc—the patch with the base of genuine U. S. Khaki, airproofed with cured rubber and with a sticking surface of Pure Para Rubber.

In Sheets: 6½x18½ inches $1.50; 4x18 inches $1.00; 2x16½ inches 50c

W. C. WOOD COMPANY, 40 NORTH TENTH ST. MINNEAPOLIS, MINN.

We make a special sheet 20x28 inches for garage use

You Need Not Keep A Customer Waiting



When he comes in for a new spring you have it for him right on the rack.

If by any chance you should not have it on the rack you can wire us and get it at once. We have constantly on hand springs to fit 90% of all American cars.

But if he is one of your regular customers you will have it right on the rack, for we give you the rack free and fit it out with springs most likely to be called for by your regular trade.

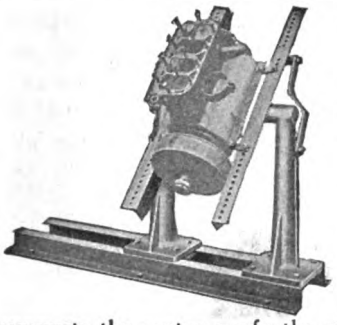
VULCAN QUALITY

This is part of our DEALER CO-OPERATION plan. Write for particulars. They will interest you.

JENKINS VULCAN SPRING CO.
1402 Chestnut St., St. Louis, Mo.

708 Commerce St., Fort Worth, Tex.
29 Caldwell St., Sumter, S. C.

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THE MANLEY "EVERY WAY" ENGINE STAND

supports the motor perfectly, while allowing the workman to reach every portion of it with ease and accuracy.

The "Every Way" can be adjusted to every position in a circle—100 positions if desired—but the three most convenient are the Horizontal Position for working on valve mechanism and generally around the engine; the 45-degree Position (shown in cut) for cleaning carbon, grinding in valves, etc.; and the Inverted Position for taking up crank-shaft, connecting rod, bearings, etc.

In each position the engine is locked rigidly by two side braces. The "Every Way" supports the engine solidly. It will never become shaky, and should last a lifetime without repairs.

For the Factory motor assembly department no other stand has been brought out that can be compared to the "Every Way" for efficiency and convenience.

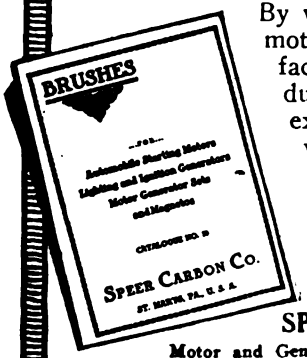
The United Engine & Mfg. Co.
"Pioneers in Garage Equipment"
Hanover, Penn.

THE Manley SHOP AND GARAGE EQUIPMENT

BRUSHES

for
Automobile Starting Motors
Lighting and Ignition Generators
Motor-Generator Sets
and Magnetos

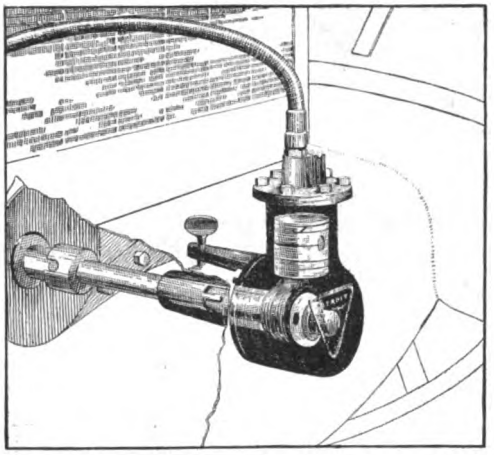
We now supply most of the large manufacturers, our Automobile Brush Department producing more than 2,500,000 brushes annually.



By working in harmony with motor and generator manufacturers, as well as conducting constant laboratory experiments of our own, we have established a reputation for producing the right brushes for each class of apparatus.

Write for Copy of Catalogue No. 10, just out.

SPEER CARBON COMPANY
Motor and Generator Brushes, Battery Carbons, Carbon Electrodes and other carbon specialties
ST. MARYS, PA. U. S. A.



GEARLESS DETROIT CRANK-SHAFT TIRE PUMP

Pat. Aug. 25, 1915

Is Designed for 960,000 Cars Between $800 and $1300

Nearly a million cars—not including Fords—are ready to carry DETROIT Gearless Crank Shaft Tire Pumps during 1917. Some of them are **specially designed** by their engineers to take the DETROIT Gearless Pump. Not one of these 960,000 cars is standardly equipped with a power tire pump.
Every one of them is owned by a man or woman who can afford a $10 DETROIT Pump.

It's easy to sell DETROIT Gearless Crank Shaft Tire Pumps to owners of cars from $800 to $1300. **It is not a rubber diaphragm device**—and it does the work. Backed by national advertising, and discounts that are right.

Attached and detached in a jiffy. Operates from the end of the motor crank shaft—without tools or adjustments of any kind. Not even necessary to raise the hood. Equipped with accurate pressure gauge and sturdy hose. Carries in the tool case when not in use.

Now ready for Briscoe, Dodge, Chandler, Hudson, Overland, Reo, Stearns, Saxon 1916 and Studebaker—cars owned by people who **buy DETROIT** Gearless Crank Shaft Tire Pumps at $10 each.

Write for details and liberal discounts.

$10
Complete

Detroit Accessories Corp.
520 Hillger Ave., Detroit, Mich.
Canadian Distributors, Walkerville Hardware Co., Walkerville, Ontario

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RIGHT UNDER YOUR THUMB



That is where your Headlight CONTROL **should be**—and if you own or drive an electrically-lighted Ford Car you can obtain such a system of control for $4.00.

Perfect Headlight at any speed of the engine, without injury to the magneto is promised to every Ford owner who orders and installs the

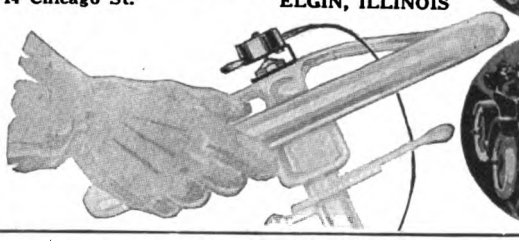
VAN SICKLEN
COMBINATION
HEADLIGHT DIMMER AND INTENSIFIER
FOR FORD CARS





If you value the safety of your car—the comfort of safe NIGHT Driving and of being prepared for any emergency—you will find this guaranteed Head-Light Control System, at $4.00, unfailing. Installed in 12 minutes, it requires no further attention, and can be absolutely depended upon to provide a "DIM," a "NORMAL" or an "INTENSE" Driving Light **at any speed of the car.** Booklet, "Head-Light Control," mailed free.

THE VAN SICKLEN CO.
(Made by the Makers of the Van Sicklen Speedmeters)
14 Chicago St. ELGIN, ILLINOIS





EXCLUSIVE AGENTS
for the UNIVERSAL CLAMP MFG. CO.

The Universal Hose Clamp fits any shape —fits any size hose. It consists of a ribbon of strong, very pliable galvanized steel, with holes 5/8" apart and perforations between the holes to facilitate



bending the metal to form the clamp and permitting breaking off the excess stock. Made in two sizes—"Universal Senior", for 1" to 3" hose, "Universal Junior" 1/4" to 1".

REAMER SALES CO., Mfrs. Agents, Hackensack, N. J.

Sell Your Country Friends Electricity

The rural districts of the country comprise a field rich in prospects for small town auto dealers and garage owners.

Every prosperous and up-to-date farmer is keen on having modern up-to-date city conveniences for his home.

Uni-Lectric
GASOLINE-ELECTRIC UNIT
LIGHTING SYSTEM

The particular knowledge of mechanics and electricity that the average auto dealer and garage man has makes him a valuable dealer for us. Uni-Lectric machines are easily sold, they stay sold, and the margin of profit is unusually liberal.

Write us today for full particulars of our exclusive dealer's proposition.

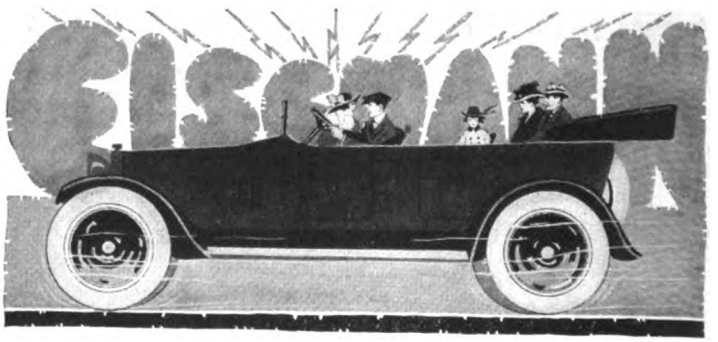
THE WATERMAN MOTOR CO., 137 Mt. Elliott Ave., Detroit, Mich.

EVERY TOURIST WANTS THIS KOT

The most comfortable, convenient and economical sleeping arrangement possible is found in the ANYKAR Auto Kot. It rests on the backs of the seats and is adjustable to fit any 5 or 7-passenger car. When not in use it folds to a convenient size for carrying in the tonneau. Kot is 6 ft. by 2 ft. and weighs less than 15 lbs. Ask your jobber or write us direct for proposition on this popular article. Retail price $10.00, or 2 for $18.00. Address



PEORIA AUTO-KOT CO.
Peoria, Illinois
Dept. 17



Back of Every Good Motor

—is good ignition, a spark so hot and strong that the motor throbs with power, the kind of spark you always get from

The

EISEMANN
MAGNETO

The intensely hot Eisemann spark is an all-the-time spark—powerful—dependable. Even if the mixture is rich or lean, whether the motor is racing or barely turning over, you can count on your Eisemann ignition to give you full explosions.

Why have 117 Manufacturers of Pleasure Cars, Trucks, Tractors, etc., adopted the Eisemann Magneto as standard equipment? Ask them!



THE EISEMANN MAGNETO CO.
Sales and General Offices:
32-33rd St., Brooklyn, N. Y.
Detroit, Mich., 802 Woodward Ave.

DEALERS ATTENTION

Watch next week's issue for startling announcement of new tractor attachment for Fords. Our dealers' proposition is right. For advance information, write

FARM TRACTOR COMPANY
FOND DU LAC, WIS.

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TIP-TOP
OF AKRON
TI-RE-PAIR OUTFIT

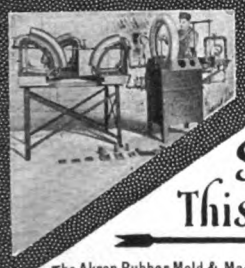
MW

Investigate the tire repair business—the best business in the country for men with two or three hundred dollars capital.

Sign name and mail for free book.

Name .....

Address .....



Send for This Booklet



The Akron Rubber Mold & Machine Co., 925 Sweitzer Ave., Akron, O.
Kansas City Sales Office, 2328 Grand Ave.
Distributing Houses Wanted in Every Locality



PATENT PENDING

The Neverout
REG. U.S. PAT. OFF.

Combination Dash-Light and Illuminating Clock for FORD Cars

The most efficient accessory ever produced for Ford cars. It fits on dash, as shown in illustration. Securely attached without any drilling. The light illuminates entire dash and clock. The clock is of excellent quality, keeping accurate time, and will outlive any car.

Current for this light is supplied by the Ford magneto.

This device is sold complete, including on and off switch. Made only by

ROSE MANUFACTURING CO.
908 Arch Street Philadelphia, U. S. A.

Dealers and Garages—

Advertise by Film!

You can make arrangements with local picture houses to run the film for a few dollars a week.

We will sell you our stock films, advertising various standard cars, garage service, etc., for $4 for a 25-ft. film. This length will run about half a minute.

We can also make you up special ads at reasonable prices. They can be made very effective.

By the recent parcel post ruling we are able to ship stock films to you, by mail within 24 hours of receipt of order. Write TODAY for information.

Federal Development Company
Alliance Ohio

AN ANNOUNCEMENT *by the*

Gillette Rubber Company

will soon appear in this publication.

It will be of vital interest to every distributor of quality tires.

Sales Office: 1835 Broadway
New York City

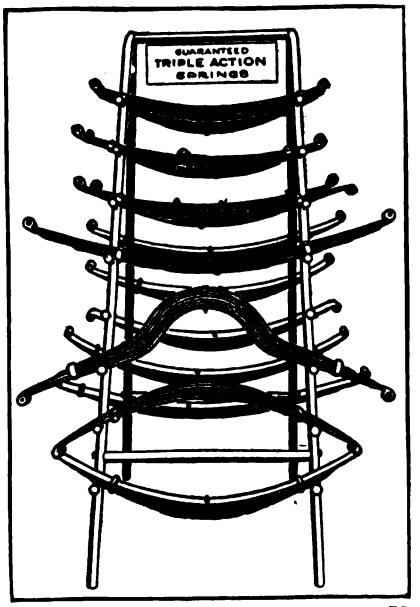
Factory: Eau Claire, Wisc.

Clinch the Spring Business in Your Territory and Make Big Money!

Every motorist is looking for real service. He abhors delays of two or three weeks in sending a spring back to the factory for repairs.

We put you in a position to give him quick, daily, even hourly, service. He *is* pleased. He comes to you for all his repair work and most of his accessory purchases.

This is the experience of over ***four thousand dealers using our service plan.***



By using our assistance you have increased every branch of your business. You open accounts with good people, who have been patrons of other garages not able to handle spring work.

Announce Yourself As a Triple Action Spring Service Station

Put in a small stock of springs for every-day orders. Not much money needed. We have every kind of spring for every make of car since 1903, regardless of whether the manufacturer is out of business or not.

If you don't happen to have in stock just the type of spring needed, wire us. We ship the same day always, even if the spring you require has to be made specially. We carry over 40,000 springs in stock ready for shipment.



There is more profit in the *Triple Action Springs* than in any other branch of the automobile accessory business. Because of the large volume of business we do, we can sell you springs at prices that put competitors out of the running, and still you make big profits.

Send for our catalog listing types, dimensions and sizes of springs for every car. We furnish you free of charge a rack for samples like illustration.

Get ready NOW before the season opens.

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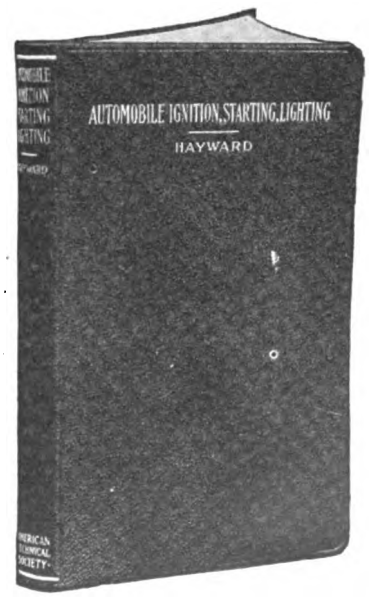
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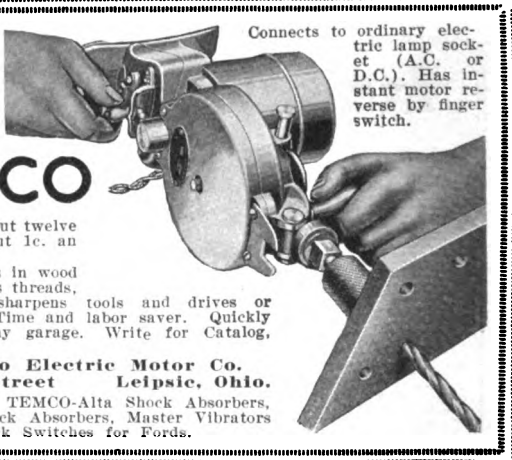
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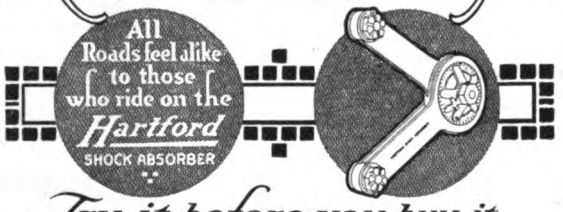
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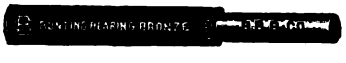
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G	2½	1½	12	11½
H	2¾	1¾	12	12¾
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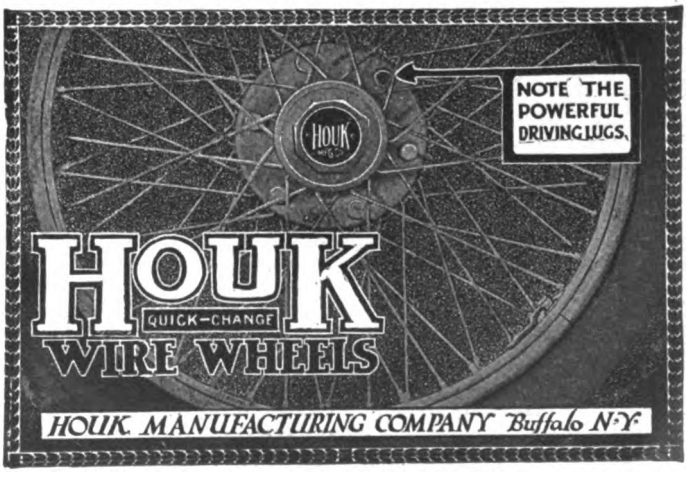
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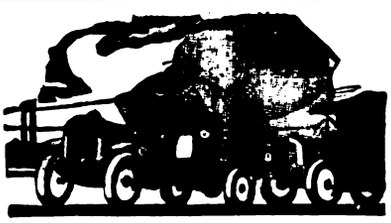
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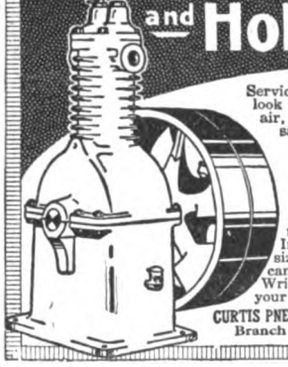


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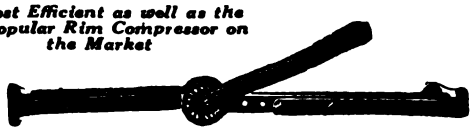
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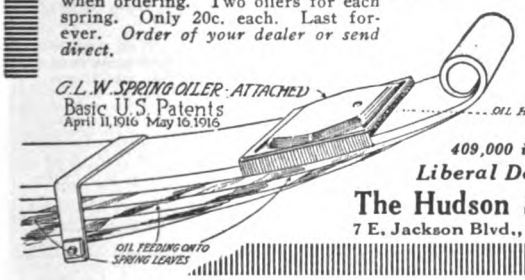
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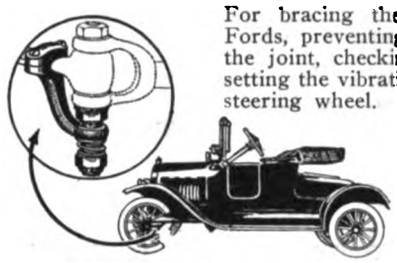
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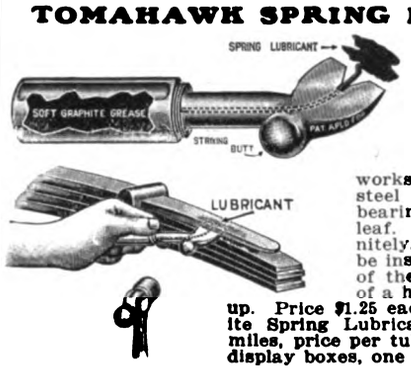
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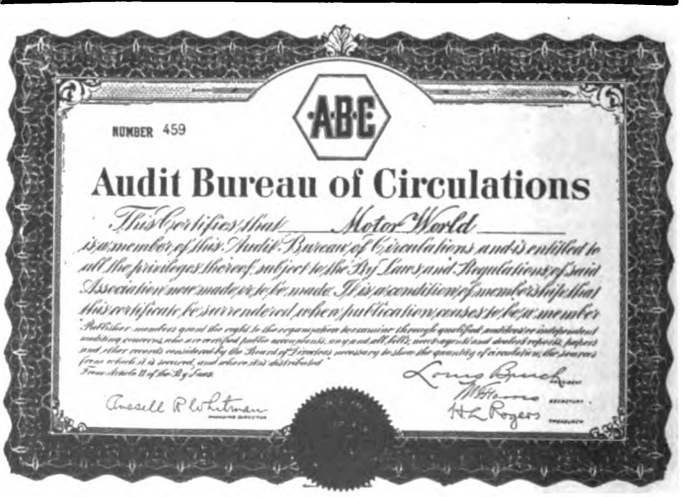
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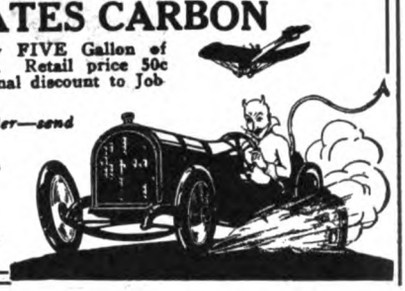
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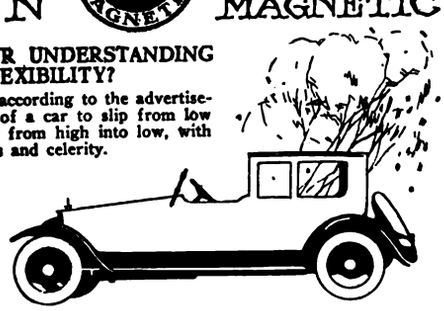


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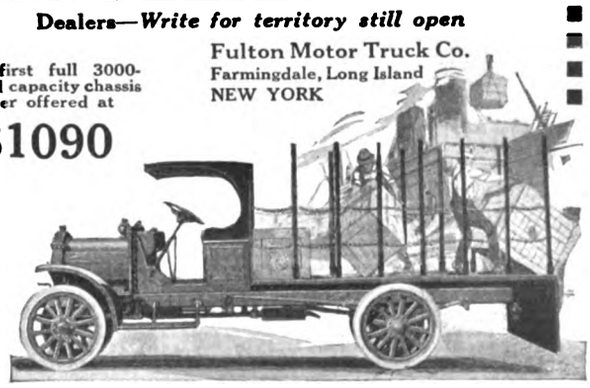
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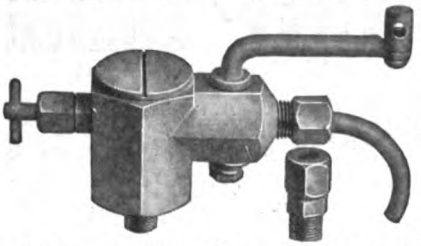
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are adjusted on a basis of 6000 miles. Ford sizes 7500 miles.

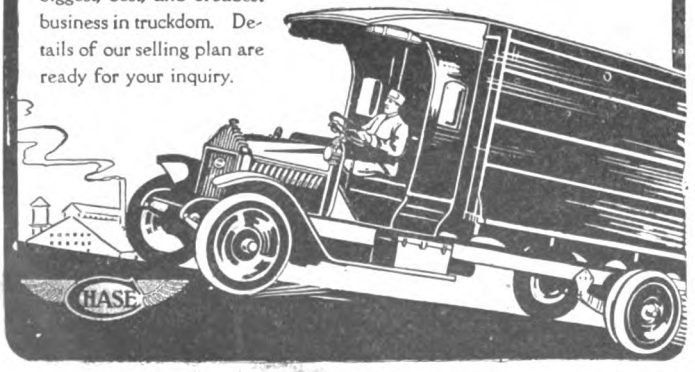
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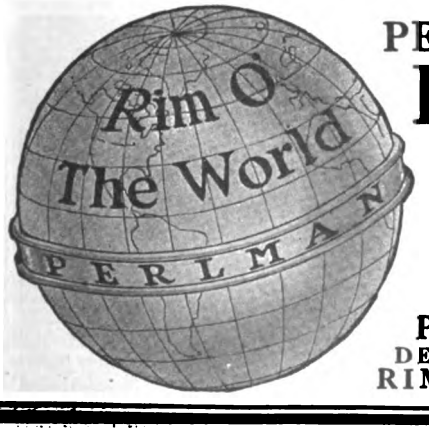
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NEWS BULLETIN

Disco Moves Into New Factory

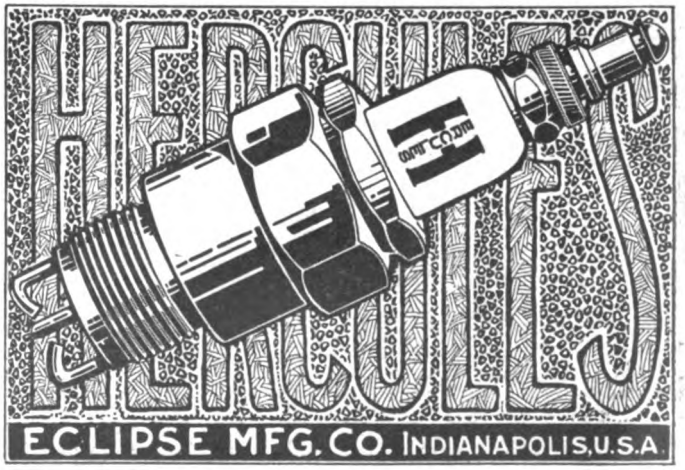
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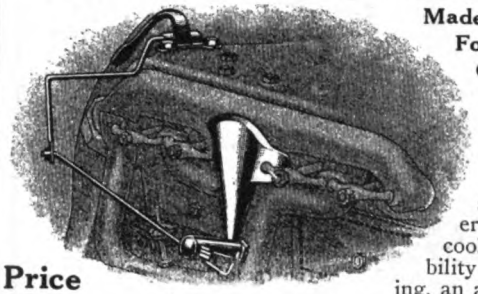
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Upholstered stools for Automobiles, Motor Boats and Carriages. The lightest, strongest stool made. Seats are three-ply, ½-inch veneer, upholstered in imitation leather, either black or maroon.

Finished regularly in Japan. Can be furnished in oxidized copper or nickel finished if desired.

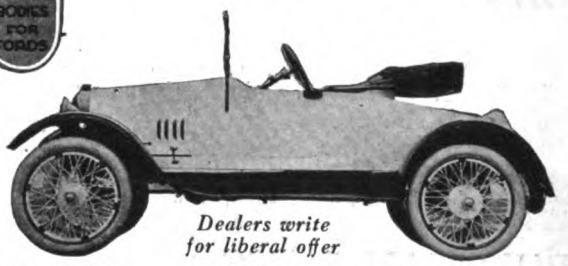
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A tire that appeals to the dealer because it is a tire that is easily sold—because every sale means repeat business — and because every Amazon Tire bought in his territory is entered on *his* books—he has no competition on this line because he absolutely controls the sale. Our proposition embodies all the necessary elements for the dealer's success—and more.

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Two Unit, Six Volt

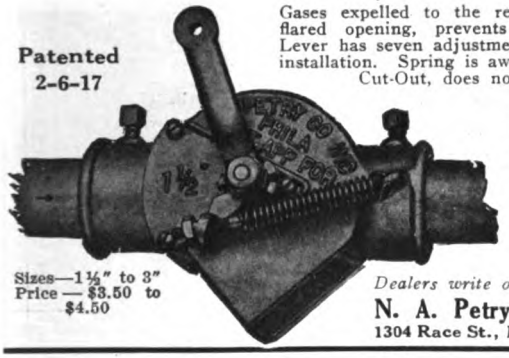
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$95 Installed

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Gases expelled to the rear through patented flared opening, prevents all back pressure. Lever has seven adjustments which make easy installation. Spring is away from the body of Cut-Out, does not absorb heat, has a simple tension adjustment and easy action, no strain on the exhaust pipe. Ends accurately machined for pipe size, and fitted with set screw which insures a permanently rigid installation.

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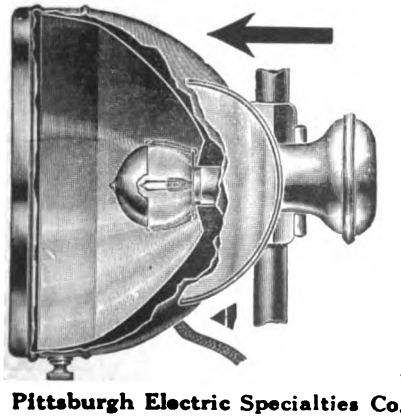
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The lamp that will make 1917 the biggest spot light year ever known.

Note the triple curvature reflector (U. S. Patent No. 1153446) that makes all the light useful and eliminates glare.

6¾ in. reflector, 4 in. mirror. C-H switch, T-swivel bracket. Price $7.50. Send for descriptive literature.

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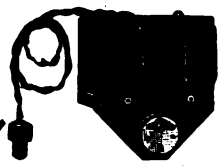


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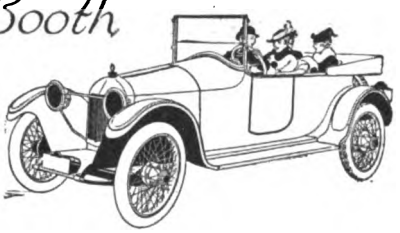
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30 by 4	9.25	2.80
31 by 4	11.75	2.75
32 by 4	11.95	2.90
33 by 4	12 60	3.00
34 by 4	13.10	3.15
35 by 4	13.50	3.35
36 by 4	14.00	3.45
37 by 4	18.25	3.75
34 by 4½	16 00	3.85
35 by 4½	16.50	3 90
36 by 4½	16.80	4.00
37 by 4½	17.25	4.15
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	4.25	1.25
	4.90	1.25
	5.25	1.40
	5.50	1.50
	6.25	1.50
	6.50	1 50
	6.25	1.55
	7.00	1.55
	7.25	1.60
	7.75	1.60
	7.25	1.70
	8.70	1.85
	7.90	1.75
	7.90	1.80
	8.00	1.85
	9.25	1 90
	8.00	1.90
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	9.50	2.10
	11.50	2.75
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30 x 3	4.25	35 x 4½	9.65
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32 x 3½	6.00	35 x 5	10.20
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	Each Net
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C. S. Front 40—07-08-09 (Sleeve)	2.00
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Size	1916 Prices Plain	Our Prices Plain	Our Prices Grey or Red tubes
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30x3½	12.75	8.75	2.10
32x3½	14.70	9.80	2.25
34x3½	16.40	10.95	2.45
31x4	19.75	13.00	2.90
32x4	20.10	13.25	3.05
33x4	20.95	13.75	3.20
34x4	21.35	14.15	3.30
35x4	22.20	14.85	3.40
36x4	22.55	15.20	3.50
34x4½	28.60	18.50	3.75
35x4½	29.70	19.50	3.80
36x4½	30.10	20.00	3.90
37x4½	31.20	20.80	4.20
35x5	33.85	21.00	4.25
36x5	34.25	21.75	4.35
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34 x 3½	9.60	10.45	2.35
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32 x 4	11.95	12.95	3.05
33 x 4	12.45	13.50	3.10
34 x 4	12.95	13.95	3.20
35 x 4	13.45	14.95	3.30
36 x 4	13.95	15.50	3.35
34 x 4½	16.95	18.95	4.00
35 x 4½	17.45	19.45	4.10
36 x 4½	17.95	19.95	4.15
37 x 4½	18.45	20.45	4.25
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30x3½	8.50	2.25	36x4	14.50	3.50
31x3½	9.00	2.50	34x4½	16.75	4.00
32x3½	9.50	2.50	35x4½	17.50	4.15
34x3½	10.00	2.55	36x4½	18.00	4.25
36x3½	11.25	2.75	37x4½	18.50	4.36
31x4	12.25	2.90	35x5	18.00	5.00
32x4	13.60	3.20	36x5	19.00	5.00
33x4	13.25	3.25	37x5	20.50	5.20

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32x3½	5.75	1.50	35x4½	8.75	1.80
34x3½	6.00	1.60	36x4½	10.00	1.85
31x4	6.75	1.65	37x4½	9.00	1.90
32x4	7.50	1.60	35x5	10.00	2.00
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Send us a list of your odds and ends and without in any way obligating you we will submit a specimen Clearing House advertisement along with advertising rates.

FOR A

Quick Turn Over

ADDRESS

The Class Journal Co.

CLEARING HOUSE DEPT.

239 West 39th St. New York City

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CONTRACT WORK

Advertisers in this section have facilities at their disposal to take on additional work on contract
AUTOMOBILE SPECIALTIES OF ALL KINDS MANUFACTURED ON CONTRACT BASIS
SPECIAL MACHINERY - PRESS WORK - AUTO MACHINE WORK
FOUNDRY WORK - AUTOMATIC SCREW MACHINE WORK
ADVERTISING RATES ON REQUEST

As a result of a constant demand for a Contract Work Section, The Class Journal Co. takes pleasure in announcing the establishing of such a department.

The Dayton Auto Parts Co.

FOR ALL CARS

Transmission and Differential gears, piston pins, standard and over sizes.

VALVES

Also a full line of parts for Stoddard Dayton Cars.
351-355 West 52nd St.,
New York.

The Class Journal Company,
239 West 39th St.,
New York City.

Gentlemen:—

By establishing a Contract Work Section in your three weekly magazines, viz., The Automobile, Motor Age and Motor World, you are filling a long felt want for the automobile industry, therefore let us compliment you on your progressiveness.

Very truly yours,

THE DAYTON AUTO PARTS CO.,
Charles E. Holste, Pres.

General Machine Works

Contract Manufacturers of

Gears, Machine Parts, Machine Assembling, Jigs, Fixtures and Tools

We want to quote prices. Send Blue-prints

GENERAL MACHINE WORKS
York, Pa.

Toolmakers For The Particular

Tools of Every Description

Jigs, gauges, all types of cutters, dies, punches, etc.

Special Machinery Designed and Built.
ESTIMATES GIVEN

DOVER-McDEVITT

80 Clifford St. Prov., R. I.

IF YOU WANT PARTS

Of Any Kind Manufactured

Communicate with THE INTERESTS

Back of this advertisement, stating your requirements, as we are so situated as to serve you to advantage.

Address Box W722, c/o Contract Dept., Motor World.

SPECIAL MACHINERY

Drawing, Blanking and Forming Dies, Tools, Gauges, Jigs and Fixtures

all work Gauged by **Johansson Gauging System.** Promptness and accuracy Guaranteed.

Stampings of all kinds

BUDD & RANNEY MFG. CO.
COLUMBUS, OHIO

SERVICE PARTS

GEARS—SHAFTS

We manufacture and distribute the following parts: Transmission Gears, Countershafts, Slide Shafts, Differential Gears, Axle Shafts, Piston Pins, etc.

SERVICE GEAR & MACHINE CO.
Reading, Pa.

New Ideas

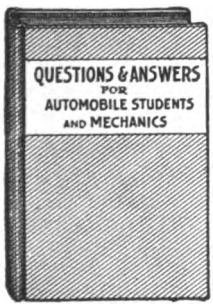
in automobile parts and accessories manufactured and distributed through our own selling organization. Let us save you trouble and expense.

Higginson-Gibson Mfg. Co.
Boston, Mass.

INVENTORS—We specialize in manufacturing new patented articles, make models, dies, and do experimental work.

Leo. J. Gerding Mfg. Co.
Dept. H, Opera Place, Cincinnati, O.

Questions and Answers



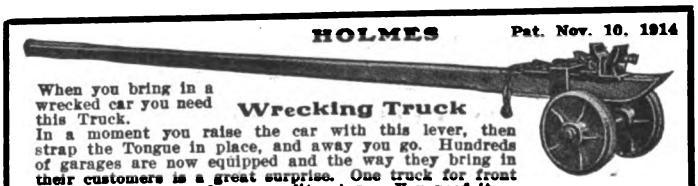
For Automobile Students and Mechanics

By THOMAS H. RUSSELL.

A book of 600 Questions and Answers, adapted for teaching School, the Machineshop or before the Board of Examining Engineers. This is the largest, the latest and most authentic book of its kind upon the market. Prepared especially for Home Study. 150 pages. Bound in flexible Covers—In fact it is a regular text book. Cloth cover, price $1.00. SENT FOR $1.50 PREPAID.

Book Departments The Class Journal Co. 231-241 West 39th Street NEW YORK CITY, N. Y.

HOLMES Pat. Nov. 10, 1914



When you bring in a wrecked car you need this Truck. Wrecking Truck
In a moment you raise the car with this lever, then strap the Tongue in place, and away you go. Hundreds of garages are now equipped and the way they bring in their customers is a great surprise. One truck for front or rear. Let us send you our literature. You need it.

ROBERT HOLMES & BROS., Danville, Illinois

Beau Brummel Bodies For Ford Chassis

DEALERS—We want to show you what a profitable line the Universal Car Equipment Co. can offer you. Write us today for full information. If you want to handle an exclusive territory proposition we will help you get the business.

UNIVERSAL CAR EQUIPMENT CO.
1306 BELLEVUE AVE. DETROIT, MICH.

Stop the Spring Breakage

It's poor policy to risk creating the annoyance of a broken or weak spring—and the delay—by saving only a very little in buying or selling a *cheaper* spring instead of a "NEW ERA *BETTER* SPRING." Don't replace a broken spring with one no better. Wise dealers sell only the best. New Era "BETTER" Springs are the oldest and largest used line for replacement—at same price as from car factories. Made for all cars. GUARANTEED one year against breakage or sagging, graphited between leaves for two years' lubrication. Write for complete lists, discounts or state requirements and class of business.



New Era Spring & Specialty Co.
879 Woodward Ave., Detroit, Michigan

FORD DEALERS

WRITE FOR SPECIAL PRICES ON CROWN FENDERS FOR FORD CARS

Chicago Automobile Supply House
1349-51-53 So. Michigan Blvd. CHICAGO, ILL.

When writing advertisers please mention Motor World—It identifies you

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How Many Times Has This Happened To You?

Ever try to drill a hole in some hard-to-get-at place, your wrists numbed with fatigue? And just as the drill went through, *the drill bit snapped* because you had to let go to reach the switch.

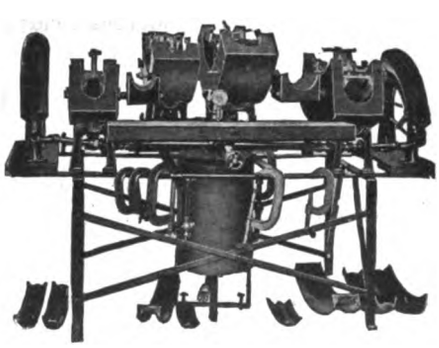
The B.&D. "Portable"—The Drill with the Pistol Grip—

does away with that trouble. You keep hold with both hands and simply pull the trigger to control the current. And the pistol grip holds the "gun" naturally and easily. Universal motor, ball thrust bearing, chrome-vanadium steel gears. Your men will get more work out of this tool. Write for circular.

The Black & Decker Mfg. Co.
Calvert and Lombard Sts., Baltimore, Md.



Vulcanizing With a Vanderpool Vulcanizer Brings Big Profits



3 Cavity Combination Vanderpool Vulcanizer

Here is an exceptional opportunity for Garages as well as Vulcanizing Companies to secure a vulcanizer that will turn out high-grade work at a small cost. The fuel saved alone, will pay for the machine in a short time—then you will "cash in" on your investment. This plant, the Vanderpool Vulcanizer, is meeting with enthusiastic approval of hundreds of satisfied users all over the country. Unsolicited testimonials from the various companies now using the "Vanderpool" testify to the dependability, efficiency and economy of this "Vulcanizing Wonder." One man writes that the first month's profits paid for the plant. No experience needed—we teach you how. It occupies very little floor space, and "once bought, you will never have to buy again."

Send in this ad with your name and we will mail catalogue and prices.

VANDERPOOL COMPANY
Box 82 Springfield, Ohio

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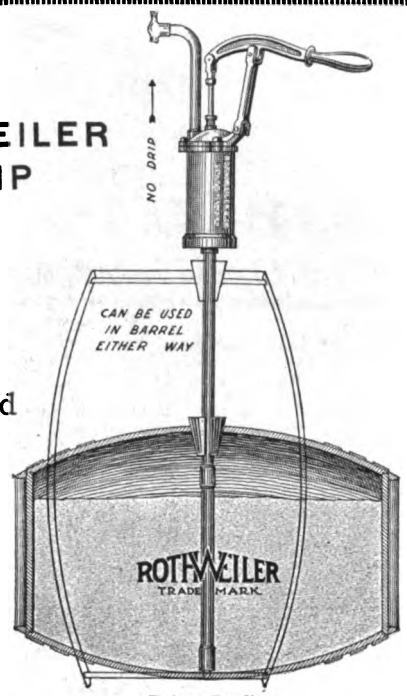
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ROTHWEILER PUMP

Price
$6.50
Delivery
Charges Paid



Patent Pending

The above method is the easiest, quickest, cleanest and cheapest way of getting all the oil, gasolene, turpentine, light paint, etc., out of a wooden barrel or iron drum.

ROTHWEILER & CO., SEATTLE, WN.

Tire Pumping And Air Testing Made Easy.



MOST of your customers know that it is death to tires to run them insufficiently inflated. A great many of them however, neglect to test their air pressure because this operation until now has been tedious and time consuming.

You will be doing them a favor if you will bring to their attention the fact that with a **SCHRADER UNIVERSAL PUMP CONNECTION** this hitherto complicated operation has become both easy and agreeable.

The **SCHRADER UNIVERSAL PUMP CONNECTION** retails in the U. S. A. for thirty-five cents and you should have no difficulty whatever in selling as many of them as you have customers. It will also help you to sell gauges to those of your customers who until now have been deterred from testing their air pressure by thought of the labor and loss of time involved.

A. SCHRADER'S SON, INC.

783-803 Atlantic Ave. Brooklyn, N. Y.

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The Center Differential in F-W-D Trucks

IN turning a corner the front wheels of a truck travel over a greater distance than the rear wheels, and therefore must revolve more rapidly. The F-W-D Truck, having power in all four wheels, therefore has a center differential to take care of the difference in speed between the front and rear wheels.

This center differential may be locked by levers in cases where it is desirable to have both front and rear wheels revolve at the same speed. This prevents spinning of the wheels when one set of wheels strikes a soft spot.

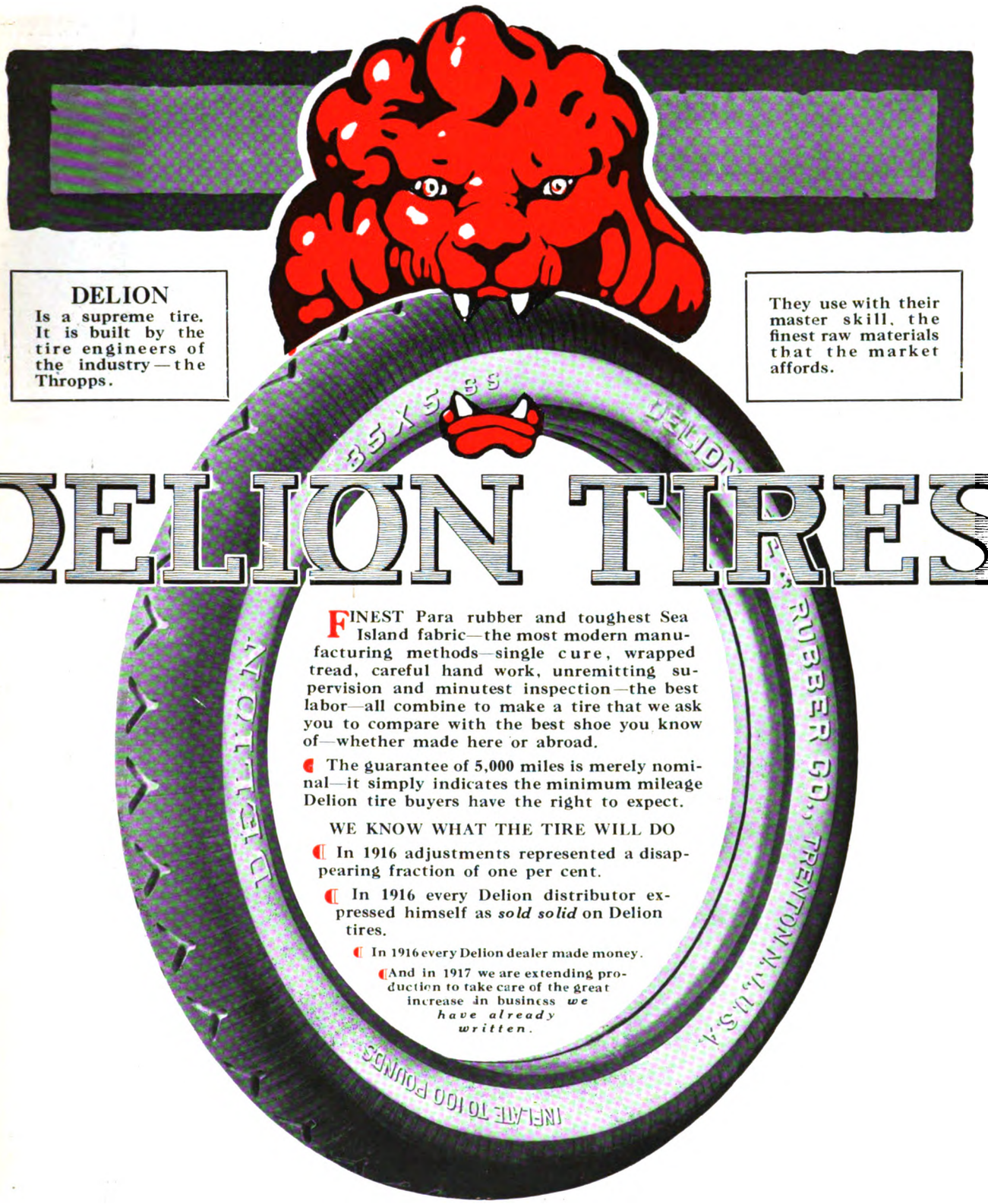
This center differential is very important in a truck employing the four wheel drive principle. It prevents slipping of the wheels and effects a great saving in tires.

This feature is fully covered by patents held by this company.

Dealers find more selling points in F-W-D Trucks—points that **can** be demonstrated—than in rear drive trucks. Unoccupied territories are available for dealers who desire a permanent connection on a sound, profitable basis. To such we will gladly send details of our dealers' agreement, prices, discounts and terms New catalog sent upon request.

FOUR WHEEL DRIVE AUTO CO.
Department P Clintonville, Wisconsin

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THERE IS SOME GOOD TERRITORY STILL TO BE HAD

The Delion proposition means CAPITAL to the man or the organization who gets it. It will become a real property right to an energetic, experienced distributor.

Exclusive territory, co-operation that moves the goods, adjustments in the distributor's control, a 5000 mile basis, an honest list, a profitable scale of discounts and a great tire—these are the outstanding, distinctive features of our selling plan.

If you know how to *make money for yourself,* write for an option on your territory.

DELION TIRE & RUBBER CO., Inc. Main Office: 1922 Broadway, N. Y.

Factory: Trenton, N. J. Western Office: 3449 Michigan Avenue, Chicago

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JOHNSON'S Prepared Wax LIQUID FORM

To meet the popular demand we are now making Johnson's Prepared Wax in ***liquid*** form as well as paste. Johnson's Prepared Wax ***Liquid*** is exactly the same as our Paste Wax except that it is a liquid. The Liquid Wax is easier to use than the Paste—it polishes immediately with but very little rubbing.



Polishes Easily

WITH Johnson's Prepared Wax ***Liquid*** you can go over a good size car in half-an-hour. It preserves the varnish and protects it from the weather adding years to its life and beauty. It covers up mars and scratches—prevents checking and cracking—sheds water and is ***absolutely dust-proof.***

Extensively Advertised

Johnson's Prepared Wax ***Liquid*** will be very extensively advertised during the Spring and Summer months. Copy will appear in all the motor papers and in the leading magazines. You are sure to have a big demand—stock now and prepare for it.

Johnson's Prepared Wax ***Liquid*** is put up and listed as follows:

Quarts	$1.20
Pints	.60
Half-pints	.35

Liberal discount to dealers. For further information, prices, etc., write

S. C. JOHNSON & SON, Dept. MW., RACINE, WIS.

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BOSTON SHOW REPORT

MOTOR WORLD

for

DEALERS, JOBBERS AND GARAGEMEN

Volume L
No 10

New York, March 7, 1917

Ten cents a copy
Two dollars a year

Miller GEARED-TO-THE-ROAD Tires

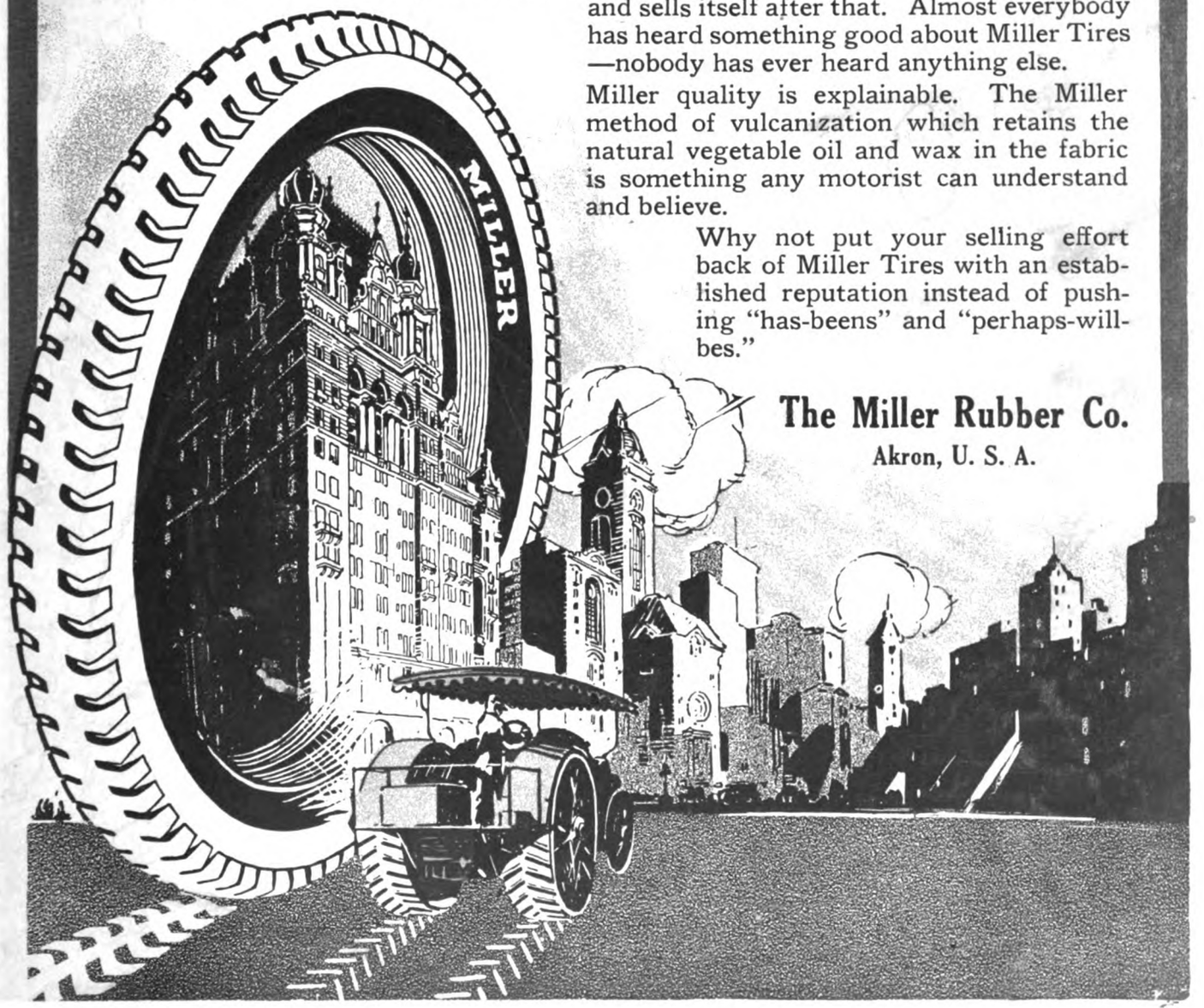
ARE REPEATERS

A well-known tire, with a reputation for mileage records, is easy to sell the first time and sells itself after that. Almost everybody has heard something good about Miller Tires—nobody has ever heard anything else.

Miller quality is explainable. The Miller method of vulcanization which retains the natural vegetable oil and wax in the fabric is something any motorist can understand and believe.

Why not put your selling effort back of Miller Tires with an established reputation instead of pushing "has-beens" and "perhaps-will-bes."

The Miller Rubber Co.
Akron, U. S. A.



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Stewart INSTRUMENT BOARD for FORD CARS

Biggest Opportunity Ever Offered to Dealers

THE new Stewart Instrument Board offers a bigger opportunity to dealers than any accessory ever presented.

This new Stewart Product opens a new field. Now every dealer can start right in and make a good profit selling accessories to Ford owners.

The Stewart Instrument Board in combination with the Stewart Speedometer sells on sight—every Ford owner wants one on his car.

Improves the appearance of every Ford. Gives the Ford Car a look of finished elegance.

Besides, it brings the Stewart Speedometer up into the correct position where it can be easily seen and read.

The speedometer furnished with the instrument board is the regular Stewart Magnetic type, same as is furnished on 95% of all makes of cars.

The Instrument Board is beautifully finished in black enamel, with a polished nickel flange to set off the speedometer. Anyone can install it in a few minutes—simply remove nuts from four screws; set the board in position and replace the nuts.

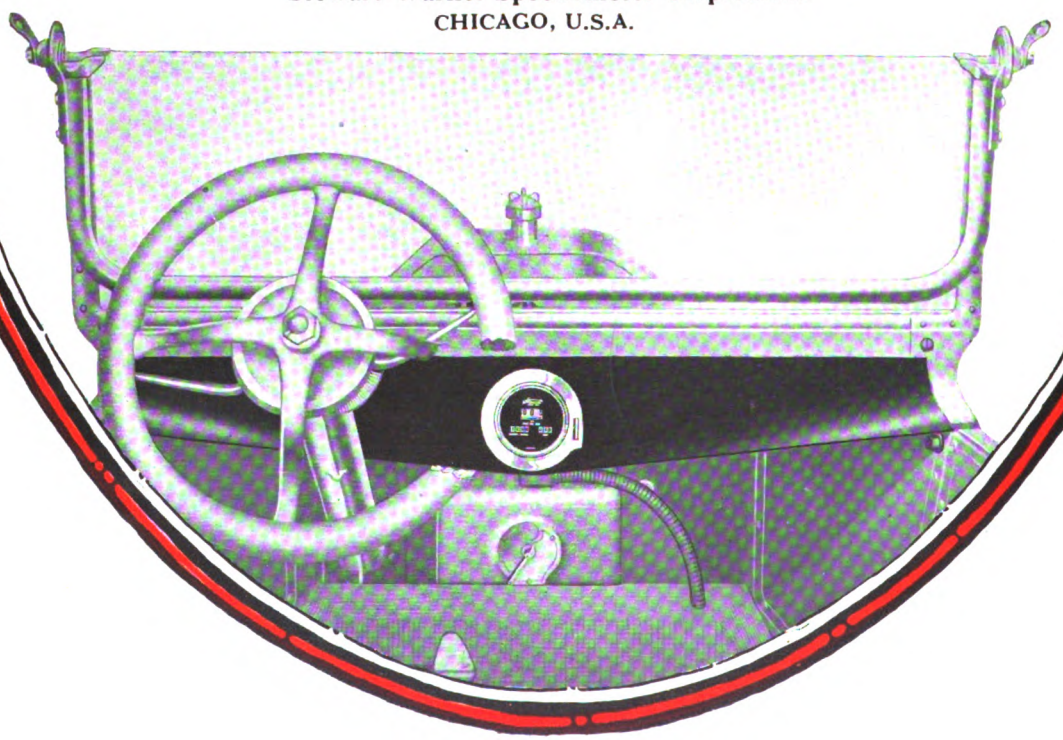
Can't you see, Mr. Dealer, that every Ford owner who sees this beautiful combination will want it instantly? Suppose you order a supply at once. The demand is very big now. You have only to show it to a Ford owner and the sale is made.

The special Ford model Stewart Speedometer sells for..... $10

Special Ford model Stewart Speedometer with Stewart Instrument Board, complete. $11.25

It will pay dealers to see that every car is "Stewart-Equipped"

Stewart-Warner Speedometer Corporation
CHICAGO, U.S.A.



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Did your territory triple 1915 profits in 1916?

Mississippi did it—with Studebaker Value

THINK of it—212% increase in sales—Studebaker dealers in Mississippi sold THREE TIMES AS MANY CARS IN 1916 AS THEY DID IN 1915—because of the proved VALUE of Studebaker cars.

There's our story in a nutshell, for not in Mississippi alone but from **all over the country** Studebaker dealers have reported remarkable sales increases—and not merely local sales increases—but increases that cover entire states—and all the dealers in the states.

Studebaker **value** is the reason.

For Studebaker dealers can offer prospects a superiority of quality, a fineness of workmanship, an artistry of finish that figures taken from the leading motor trade papers show are not to be had except in cars costing hundreds of dollars more.

If you want to multiply **your** profits—investigate the Studebaker proposition. **What others have done you can do.** Write us **today.**

STUDEBAKER

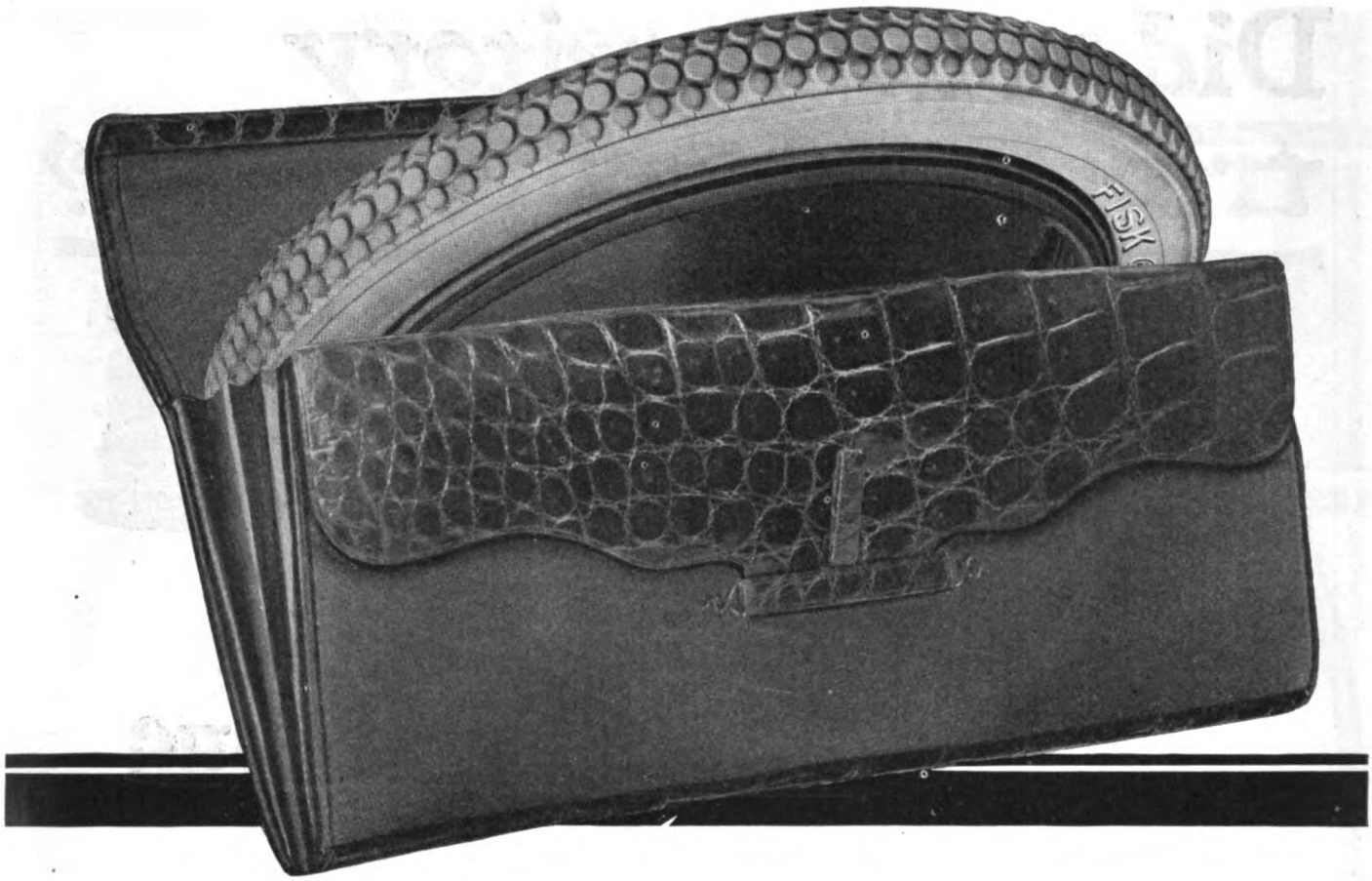
South Bend, Ind. **Detroit, Mich.** **Walkerville, Ont.**

Address all correspondence to Detroit

It pays to be a Studebaker dealer

When writing advertisers please mention Motor World—It identifies you

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There Is A

FISK

Made To Fit All Pocketbooks

THE Fisk line of tires is complete, embracing any style a person could want, from the plain tread to the grey Non-Skid and a step beyond to the handsome RED TOP, the *Tire de Luxe*. But there is this to remember about Fisk Tires, and car owners know it—every Fisk Tire is 100% Fisk Quality, and there's nothing better than that.

Let us send you full details of our unusually attractive selling proposition. Write Dept. 23



THE FISK RUBBER COMPANY

of N. Y.

CHICOPEE FALLS, MASS.



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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY

The Class Journal Co.
231-241 West 39th Street, New York City
Horace M. Swetland, President
W. I. Ralph, Vice-President E. M. Corey, Treasurer
A. B. Swetland, General Manager

Business Department
CHARLES B. SHANKS, Manager

Editorial Department
David Beecroft, Managing Editor
S. P. McMinn Ray. W. Sherman
H. F. Blanchard S. T. Williams

Branch Offices
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6960
Detroit—95 Fort Street, West, Phone Main 1851
Cleveland—516-517 Swetland Bldg., Phone Prospect 167

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Single Copies (Postage Paid).....10 Cents

Postage Stamps will be accepted in payment for subscriptions. Checks, Drafts and Money Orders should be made payable to MOTOR WORLD.
The payment of subscriptions will be shown by stamping the date of expiration—the month and year—on the wrapper that carries your paper each week. No other acknowledgment necessary.

Cable Address, "MOTORWORLD," New York
Entered as second-class matter at the New York Post Office, Nov., 1900
Member of the Audit Bureau of Circulations

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The Class Journal Co.

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When Time Counts

The thoroughness of our organization together with the size and facilities of our plant assure prompt delivery of SAE Standard Cap Screws, SAE Semi-Finished Nuts, SAE Castellated Nuts, as well as

CORBIN

Automatic Screw Machine Products

When time is an important factor with you it would be well to remember this fact.

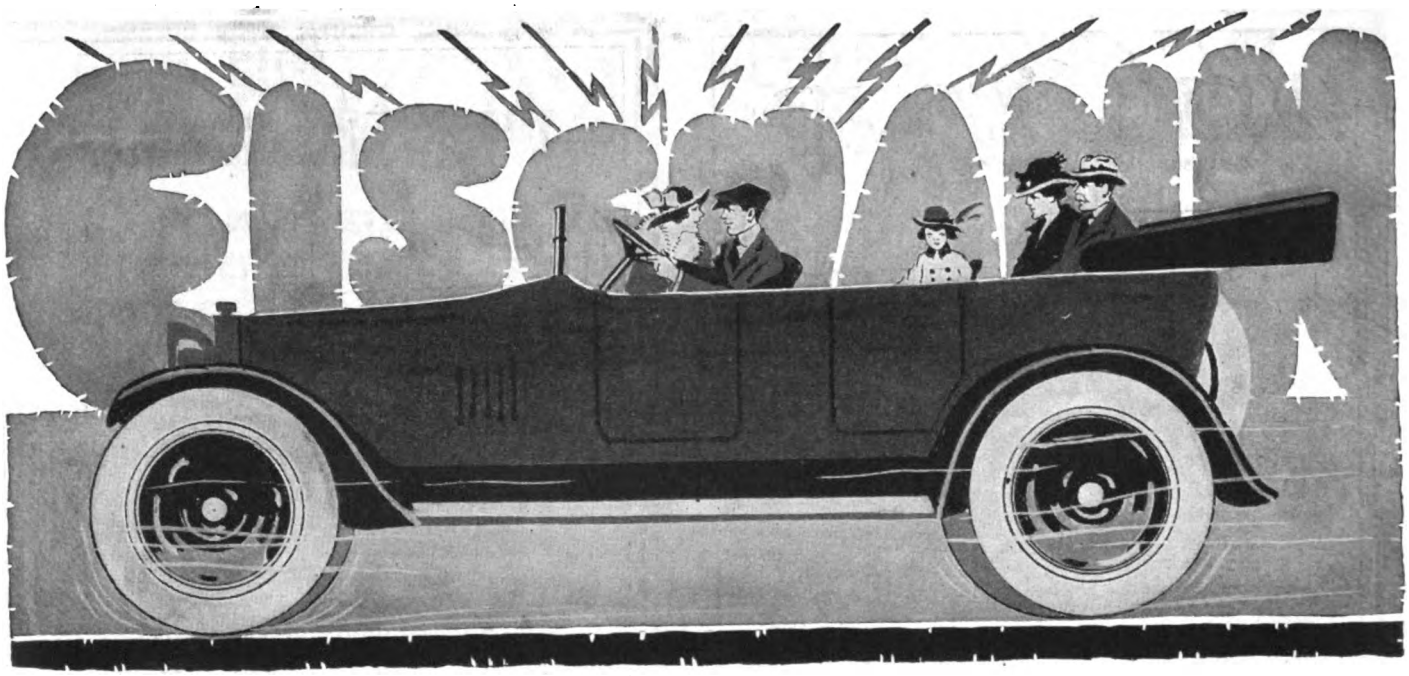
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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. L | New York, U. S. A., Wednesday, March 7, 1917 | No. 10

The New England Trade



"They're swapping motor cars for potatoes in New England"—News Item

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This is not
a dry as dust story.
It has human interest
in it.

Potatoes and Color

FEATURES OF

Boston's Best Show

By Stanley P. McMinn

The potato is king in Maine and his subjects are New Englanders. In Boston they're turning more and more from somber colored cars. These are the features of the Hub's biggest and best show.

BOSTON, Mar. 3—Boston's fifteenth annual motor car show gives promise of being the greatest business-producing show of them all. It is the biggest show Boston has ever had. For the first time it has been necessary to requisition another building in addition to the old Mechanics Hall which has held Boston's shows for years. This is Horticultural Hall where the first shows were held. The show opened to-day and half an hour after the doors were thrown open to the public it was all but impossible to crowd through the aisles.

A spirit of optimism has spread all over the country, but no other section has anything on New England, where factories have been literally up to their ears in munitions contracts and where agriculture has made new records for itself.

In Maine the potato is king. It is almost impossible to give any conception of the furore which this homely article of food has created during the last few months. To-day potato farmers are hoarding potatoes like diamonds and the market price stands at $10 a barrel as against $1.35 a barrel a year ago.

In Connecticut tobacco reigns supreme. The crop was not a great deal bigger last year than the year before but prices have been soaring to such an extent that it is now estimated that a tobacco farm of 20 acres will return enough profit to the owner to let him buy a motor car and have enough left over to buy a lot of extras.

The Rush Will Continue

New England manufacturers have been going at top speed all during the year gone by. And because they have been so intent on supplying the warring nations with the wherewithal to fight their battles, domestic trade has suffered to a certain extent. In consequence it will be necessary for these factories to operate full time and perhaps overtime in order to supply the demand in America.

This is particularly the case in the great boot and shoe industry of New England. The textile mills have been rushed to death during 1916 and their only hope to catch up with domestic demand is to keep on going full steam ahead.

200,000 in $2,000 Class

Some indication of the prosperity of the section is given by the recent income tax returns in the state of Massachusetts. Government statistics show that on March 1, 200,000 persons had filed reports owning up to incomes of $2,000 or more. An income of $2,000 is enough to support a motor car. And as Massachusetts has now about 100,000 cars after duplicate registrations have been eliminated and trucks taken out, dealers figure that there remain 100,000 persons who are financially able to operate cars.

But the biggest feature in New England is the Maine potato crop. Potatoes have made Aroostook county in Maine the second richest community per capita in the United States. Dealers state that it is becoming common practice for potato farmers to swap potatoes for motor cars, turning over consignment receipts for from 100 to 150 barrels of potatoes for a motor car. And the car dealers are glad to get the potatoes for they are confident that the high level has not been reached as yet.

Thus we have the spectacle of motor car dealers becoming potato speculators. And stranger still some of the potato barons are becoming motor car dealers. Here is one instance:

P. H. Reed of Fort Fairfield, Me., cleaned up a quarter of a million dollars in potatoes this spring. He is now deserting the potato field and has contracted to handle Apperson cars.

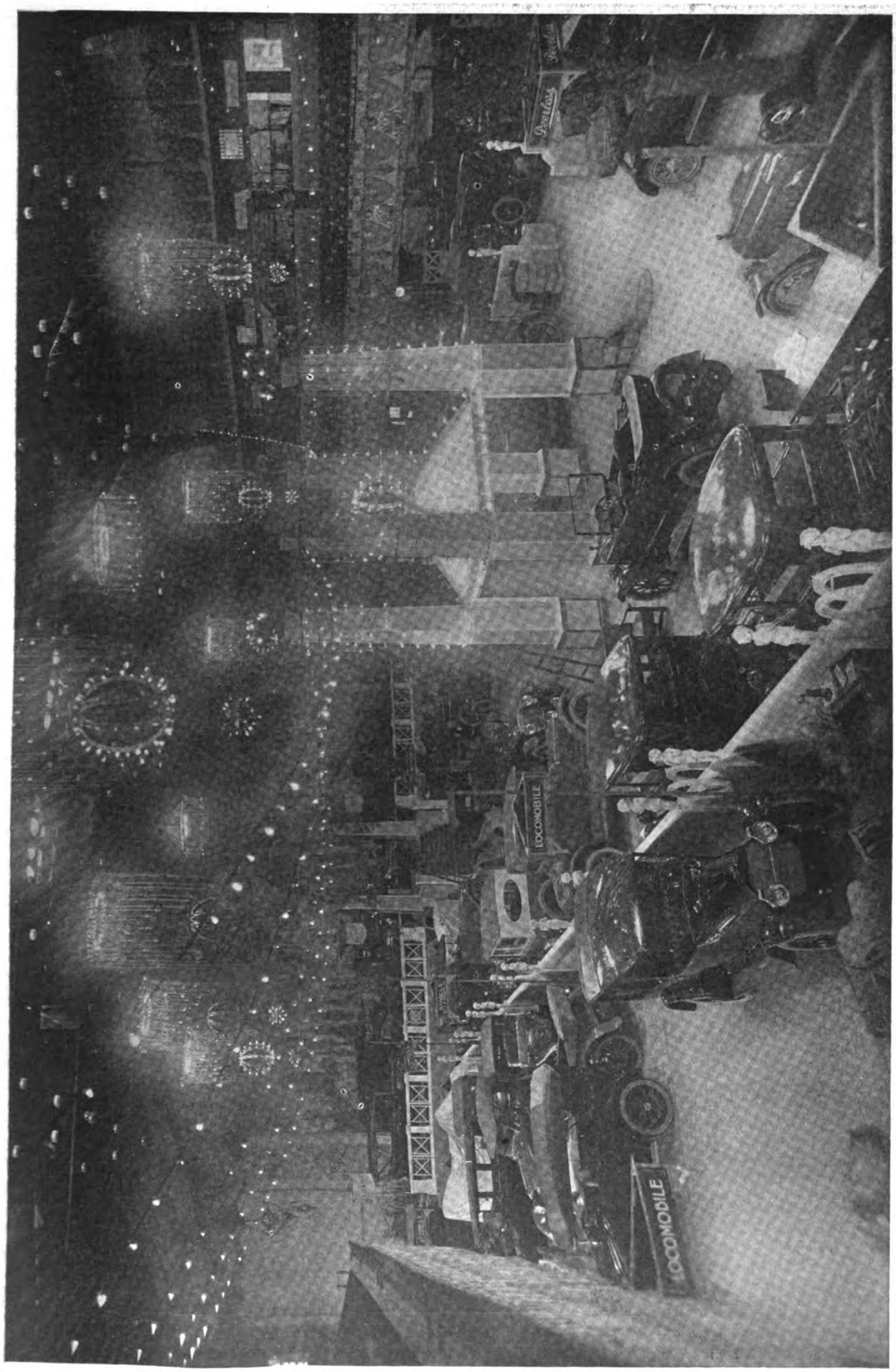
Potatoes Pay Mortgages

Potatoes are paying off mortgages that have stood for years. Here is a news despatch printed on the front page of a staid Boston newspaper:

AROOSTOOK POTATO MEN PAY $1,000,000 MORTGAGES

"Houlton, Me., Mar. 2—According to statistics from the registrar of deeds to-day, 1150 farmers in Aroostook County have taken advantage of prosperity, induced no doubt by the soaring price of potatoes and had mortgages against their farms discharged. At least $1,000,000 is involved in these transactions."

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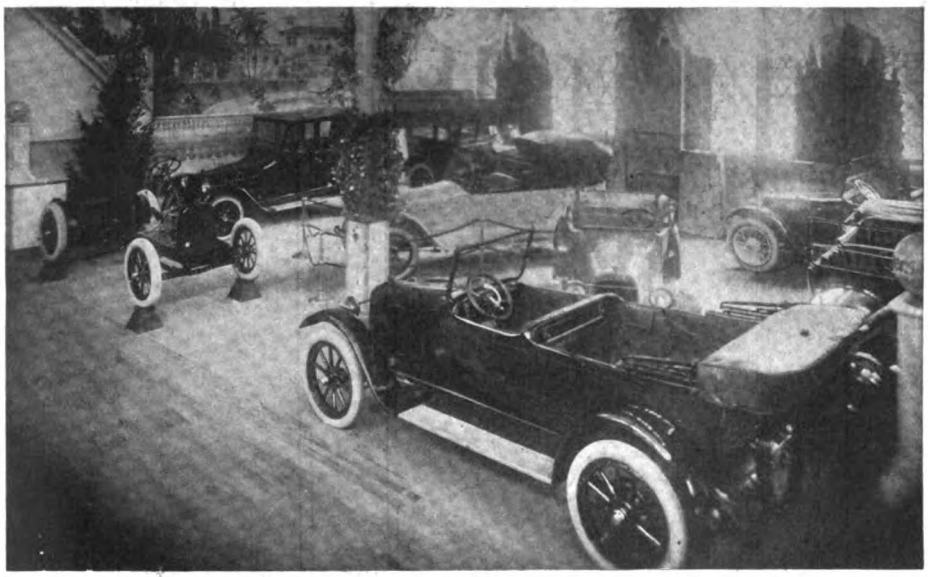


Campbell has called Grand Hall the "Hall of Jewels" and it looks the title. Overhead, great festoons of vari-colored tungstens are reflected from thousands of crystals. It is the most beautiful setting of them all.

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Here is a well-arranged accessory exhibit with everything well displayed and nothing offending the eye



Chalmers put its whole line in this space. One car less would have been better

New England always has been the great playground of the Eastern seaboard. It is the touring ground for the east. And for this reason the great demand is for touring cars. What is really significant, however, is that Boston is turning slowly but surely away from the somber stock colors that have been so much in demand. There has sprung up an easily defined demand for brighter colors.

Demand Special Colors

And the vogue is spreading. Nearly every dealer is prepared to supply cars painted in special colors and there is some tendency toward pushing such cars. The firm of Shauck & MacMurray, Apperson dealer, for example, last year, made a specialty of selling special cars. Every car sold was painted in a different color, some of them bright enough to be conspicuous and others just a little different from the ordinary. There never is any difficulty in selling these cars though some dealers report a slight difficulty in keeping them sold.

In other words, they state that the prospect becomes enthusiastic over a special color, buys it and drives it a few times and then seems to tire of it. In many cases dealers have had special color jobs thrown back on their hands to sell and in other cases purchasers have insisted on cars being done over in more somber colors.

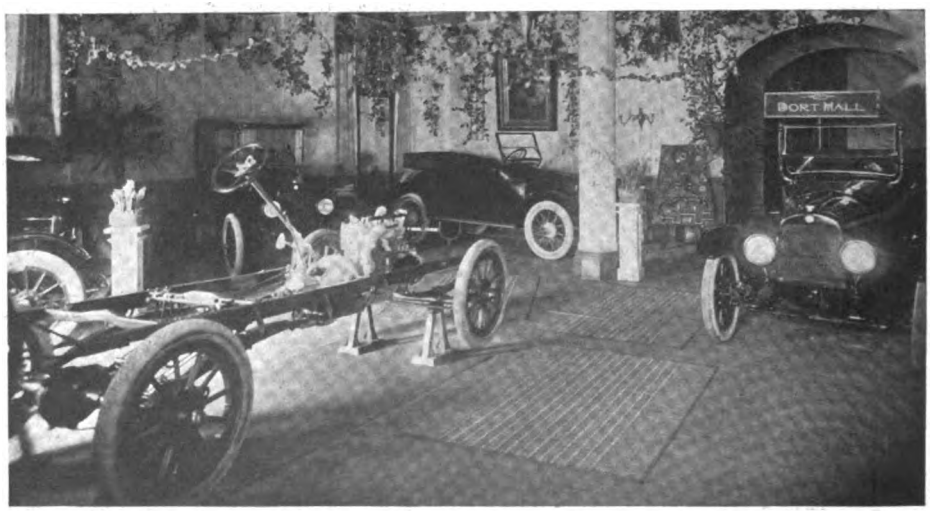
Dark Colors Prevail

This applies, of course, only to the cars which are painted in really bright colors, such as canary yellow, red, the lighter grays and blues, etc. Cars which are just a little different, the dark maroons, dark blues and greens and the dark battleship grays are very popular and seldom give any trouble either to sell or to keep sold. It is to color combinations such as these that the New England purchaser is turning quite readily. Stock colors are always in demand and the dealer never has any difficulty in changing the mind of a prospect who may have a hankering for a special job; there are scores of arguments why a prospect should prefer a stock color and not the least important of these is the possibility of getting the car in much less time than is needed for special paint.

Roadsters in Demand

Of late a plainly apparent demand has sprung up for the new three- and four-passenger roadsters and the demand for the regulation two-passenger roadster holds strong.

Dealers point out that the four-passenger roadster is the kind of car that is purchased largely by men of means who have other, larger cars in their garages but who want the smaller car for short trips to the country club and to drive around the city. They may give their friends a lift on these short runs and the friends don't expect the comfort that is necessary on a long tour. The four-



The Dort was displayed in "Dort Hall" all by itself, and there was plenty of room for prospects and salesmen

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Glimpse what the show-goer saw when he entered the main gate. Clean, broad aisles with plenty of room to move around were a feature of the show

passenger roadster gives the owner a place for himself and his friend and plenty of space in the rear for his golf sticks.

In spite of the snow, and in spite of slushy, sleety weather, the public is flocking to the Boston show. On opening night, estimates of the attendance vary between 40,000 and 45,000. At Horticultural Hall there was a fair sprinkling of visitors, but the consensus of opinion seems to be that putting this part of the show so far away from the main show—the show to which Boston has been accustomed to go for so many years—was not as satisfactory as might be desired. Horticultural Hall is several blocks away from Mechanics Hall.

Campbell Outcampbells Himself

The main show—the show where the real crowd goes, by the way—is in Mechanics Hall. And just as Sam Miles outmilesed himself in New York so has Chester Campbell outcampbelled himself in Boston.

The sober black and white effect that last year transformed the big building into a real show place this year has given way to a riot of color. Judge of it by the high sounding titles which have been given the two halls. One is the "Hall of Jewels"; the other, "Gardens from Other Lands."

Neither of them is entirely descriptive of the decorations. In Grand Hall the white figures that stood in the center last year are atop white fences which make of the center a place apart; and in the center a wonderful pagoda rears its electric-lighted top to the roof-trees. Great clusters of electrics, every color in the rainbow are reflected from clusters of crystals as big.

A Series of Gardens

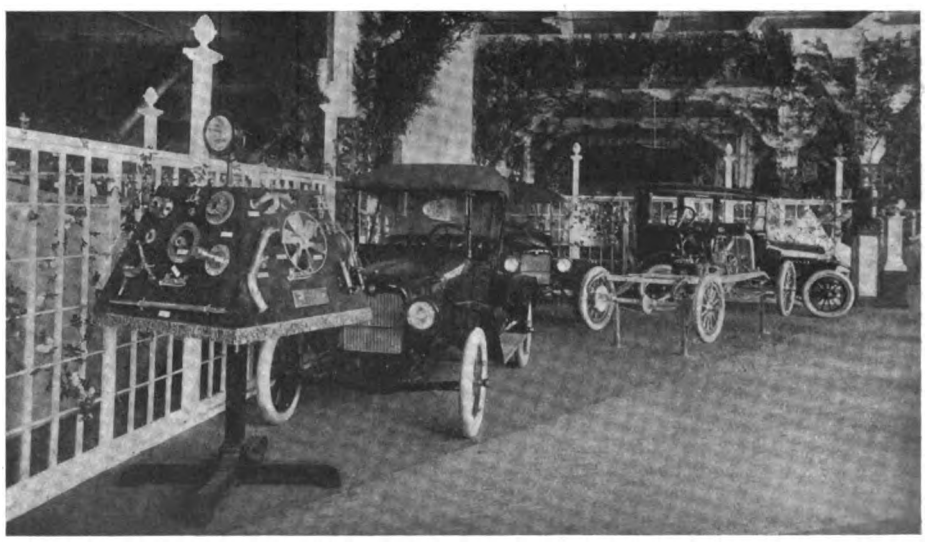
Exhibition Hall is a series of gardens; there is an exhibit to a garden, white fenced and separated from the next by masses of foliage and flowers. Overhead some of the glory of Grand Hall has been borrowed and strings upon strings of colored tungstens are reflected from the kind of crystals that hang from the chandelier in an old-fashioned "best room."

As usual, the Boston show is the most complete show. It has some 90 different brands of pleasure cars, 50 different makes of trucks, and 170 accessory exhibitors. A count shows that there are just 519 trucks and cars on the floors of the two buildings.

Most of the cars and trucks already are familiar to the show-going public though about a dozen makes of cars are new to the Boston show-going public. One car not previously shown is on view.

Napoleon Is New

This is the Napoleon which is made by the Napoleon Automobile Mfg. Co., Na-



Maxwell had a difficult space to handle but it had the advantage that it was easy for the prospect to enter

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Horticultural Hall was required to hold the overflow exhibits that could not be put in Mechanic's Hall

poleon, Ohio. It is a well-finished, attractive looking car with a five-passenger body, with a wheelbase of 112 in. The motor is a 3½ x 5 Lycoming four with Dyneto starting and lighting system. Other essential elements are a disk clutch, three-speed gearset, Weston-Mott axle and cantilever rear springs. Tires are 31 x 4.

Boston always has been and probably always will be the Dealers' Mecca. From all over New England they come. Far away Maine, where the potato farmer holds sway, gives up its quota; not even the perennial and heavy snows of Vermont and New Hampshire keep the dealers home; Massachusetts and Connecticut dealers flock to the show in droves.

Real Truck Merchandising
See Page 12

Exhibits Reveal Careful Study

They Show the Boston Dealer Knows His Prospect and His Problems

By Stanley P. McMinn

BOSTON, March 3—On every side the Boston show gives evidence that the Boston dealer has studied his prospect and his selling problems. The merchandising of motor cars has been developed here to a high degree, largely because the dealer *has* studied his prospects and his problems.

Dealers have come to a realization that the average New Englander is slow to buy, is of an investigative turn of mind; that he requires assurances of adequate service facilities; that he like an appearance of quality in what he buys.

In consequence there are a number of displays which have been arranged to assist the dealer by bringing to the attention of the prospect these things which he seeks, consciously or unconsciously.

Demand Special Colors

It may be that the characteristic slowness of the New Englander to make decisions has been responsible for the development of a growing trade in specially painted cars. For it seems altogether possible that dealers are attempting to force quicker decisions by displaying merchandise which has a more direct appeal—something which is a little different and which stimulates a stronger desire.

At any rate, dealers from every section of New England admit to a greater demand for special colors and it seems likely that this demand has been largely brought about by the display of such cars on salesroom floors and at the show.

"Class" Atmosphere Attracts

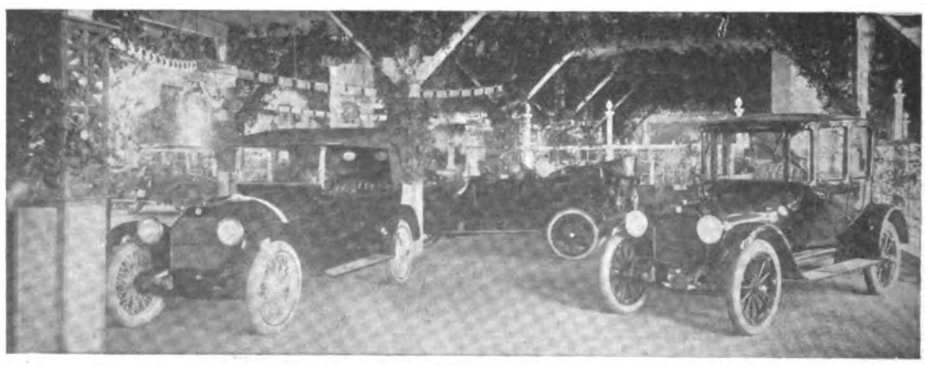
New England prospects like class. And many of the dealers have set about displaying their cars in a "class" atmosphere. And if any proof is needed that this "class" atmosphere really attracts the crowd, it is only necessary to stand for a few moments near such an exhibit.

One feature to which more attention might be paid by a great many New England dealers is the attention-compelling value of a chassis. New England is the home of the skilled mechanic. Fine workmanship is in the air and perhaps in no other section of the country is there such an appreciation of mechanical craftsmanship.

In every exhibit where there is a chassis on exhibit there is always an interested crowd; wherever there is a crowd there is a chassis. Oakland has its chassis suspended in giant shaft hangers so that it can be turned completely bottom-side up and there is always some one turning it. The chassis and the lecturer with which Franklin made such a hit last year has been left out.

On the whole, exhibits are well arranged though there is still apparent a great tendency toward crowding. Not all dealers have come to a realization of the value of space—space in which to work and in which the prospect can be comfortable.

One of the best examples of the use of space is the Studebaker exhibit. Here there are a few cars in a big space with plenty of room to move around. As a result the exhibit never appears over-



Studebaker left plenty of room between the cars. It was easy to get into the exhibit which was never uncomfortably crowded

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crowded and prospects have no difficulty in getting in and no hesitation. Where an exhibit is terribly crowded, as many of them are, the prospect has got to be pretty enthusiastic to get up courage to force his way in.

Probably many sales are lost for this reason. If a prospect sees a great crowd in an exhibit he is likely to pass it up and decide to come back later. And he will come back later if some other salesman in a less crowded exhibit does not get him first.

Easy Entrance Important

It is important that it be easy for a prospect to get into an exhibit. There should be large spaces between the cars so as to leave plenty of room to get in. Many prospects don't go into exhibits because it is hard to get in. The entrance may be inconspicuous or may be clogged with people. The most successful exhibits are those which have no proper entrance so to speak, but are so open that the prospect is in the exhibit almost before he knows it.

As usual, "Johnny" Johnson, Buick distributer, has one of the most attractive exhibits at the show. He has a Buick roadster on a plush carpet bound with gold and under a plush canopy which masks a bank of lamps brilliantly illuminating the car. Just behind it there is another Buick roadster on a concealed turntable also brilliantly lighted. The public likes these displays and there is always a crowd around them.

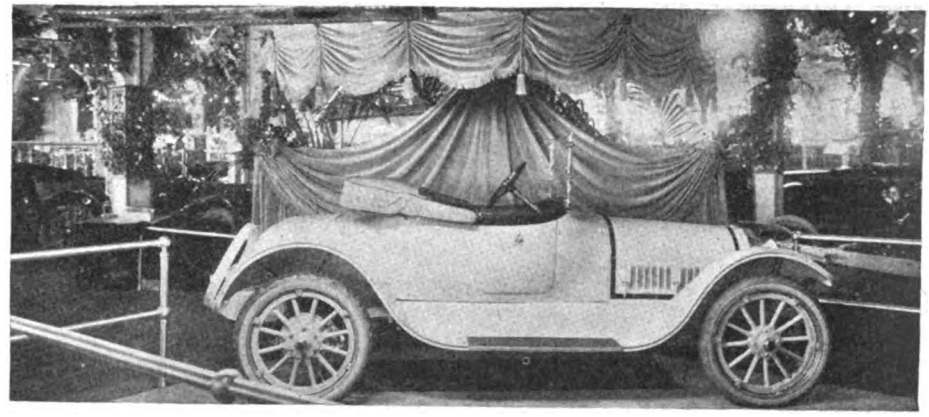
Some Theatrical Displays

These are what may be termed theatrical displays and there are several others which have practically the same attention-compelling value. The Pope-Hartford Co. of New England as usual has Paul Revere hall, which gives all the effect of a separate exhibit and seldom is overcrowded. On the stage at the back of the hall there is a Mitchell car done in gold and tipped slightly so that a partial view of the seating arrangement is possible.

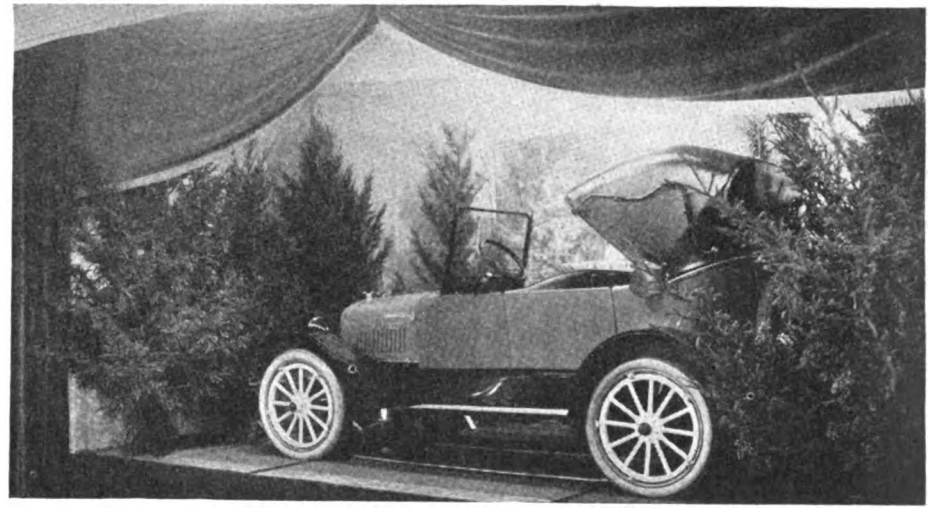
This year there are two other "halls" in addition to Paul Revere. Dort has a display in what is styled "Dort Hall," and Metz has converted what was a corridor before into "Metz Hall." In Metz Hall the complete line is displayed and on an improvised stage there is a special car painted brown and having a Victoria top. It is exhibited in a bank of evergreens, effectively lighted and always attracts a crowd.

This exhibit is of particular value because the Metz has always been a low-priced car and New England buyers are not accustomed to couple low price and class together. But this exhibit does just that. It makes plain that it is not only possible but quite easy to make the Metz into a "class" car. The paint and the top do the job and the display brings this out.

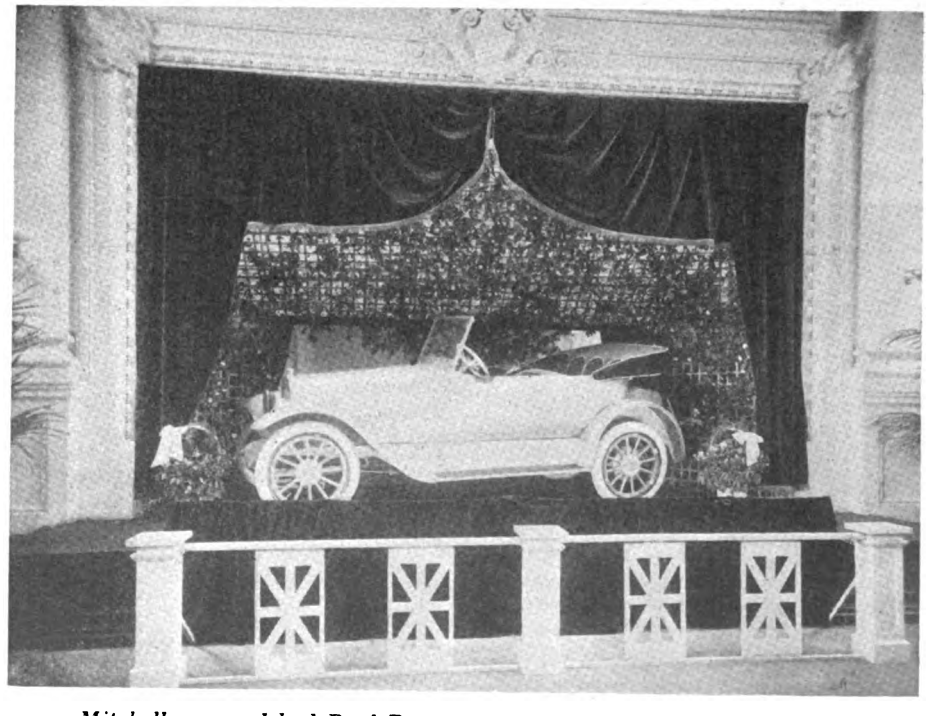
One of the most effective displays—effective in that it successfully gives an undeniable air of "class"—is put on by the Chandler Motors Co. of New England. At the back of the exhibit is a Chandler car painted a special color and mounted on a raised dais covered with an Oriental rug. At one end of the car is a small



A Buick roadster was displayed on a blue plush carpet with a blue plush canopy over it with theater lighting



A Metz touring car was painted a special color and fitted with a victoria top, which, with this setting gave an undeniable air of "class"



Mitchell as usual had Paul Revere Hall. This is a gold car tipped to give a view of the seating arrangement

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office. At the other end there is a wicker table, several chairs and a lamp, all these being on another Oriental rug. The effect is quite as inviting as it is pleasing. Furniture and rugs were imported—from the salesroom.

In short, the Boston dealer has a definite reason in his mind why he wants an exhibit with an air of "class." He has realized that he needs such an air to meet the conditions peculiar to his territory and has set about to get it.

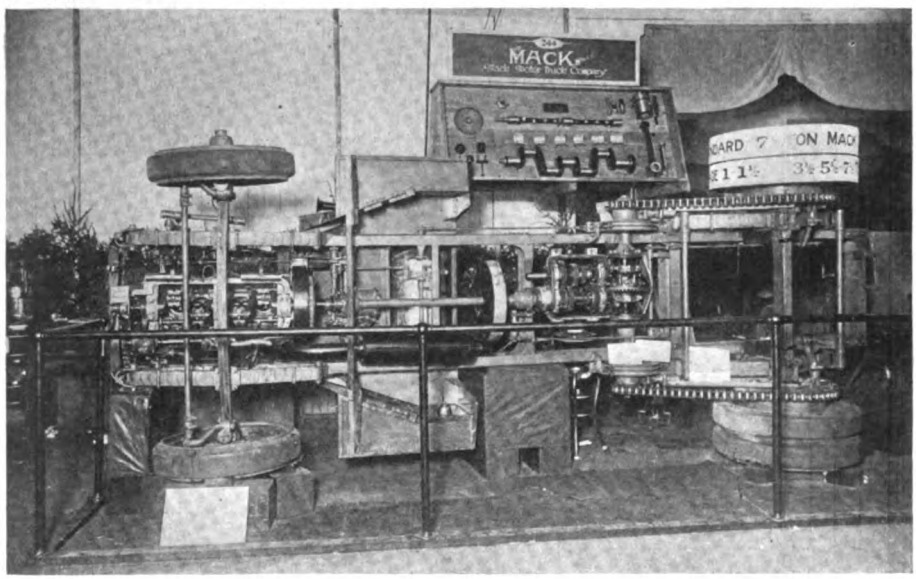
Here's Real Truck Merchandising

Commercial Vehicles Displayed to Show Construction and Ability

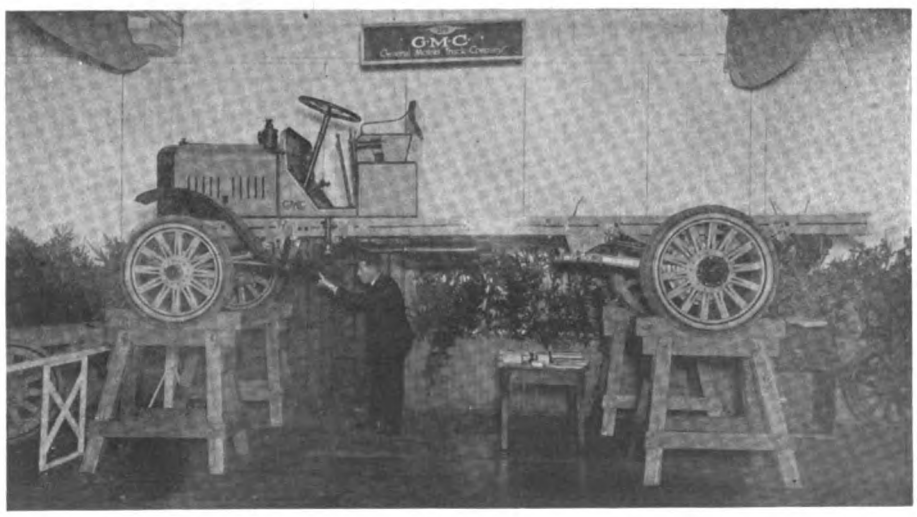
BOSTON MASS., Mar. 3—Two methods of better motor truck merchandising are in evidence at the Boston show. Both are based on the fact that purchasers of motor trucks buy such vehicles upon what they are made of rather than how they look.

Passenger cars are to-day most generally bought on appearances. The average American passenger car owner buys his car on how it looks. It must have style. He relies upon the generally recognized ability of the manufacturers to make the cars run.

Of course with the rising cost of fuel, owners are paying more and more attention to the cost of operation. They want cars economical of fuel, tires and maintenance, but—they must be good looking.



The Mack Dealer put a 7½-ton truck on its side and set it running to show the operation of its massive parts



G. M. C. used wooden horses to let the prospect wander under the truck and examine the works in detail

To prove this evidence the action of the largest manufacturer of motor cars in the world, who only last year departed from his previously strictly-adhered-to policy by bringing out a new model with a more pleasing hood over the motor and a more graceful body considered more or less of the streamline type.

Merchandising Trucks

There is a trend toward the better merchandising of motor trucks. It is not toward appearance. Motor trucks cannot be sold by placing them on velvet carpets or raised platforms and illuminating them by banks of electric lights concealed by imitation foliage festooned from the beams and girders of the exhibition hall.

It is all different with trucks.

People who buy trucks expect to make money by using them in preference to horse vehicles. They are a strictly business proposition. Prospective purchasers care little for appearance provided the trucks will run and keep running with but little maintenance cost.

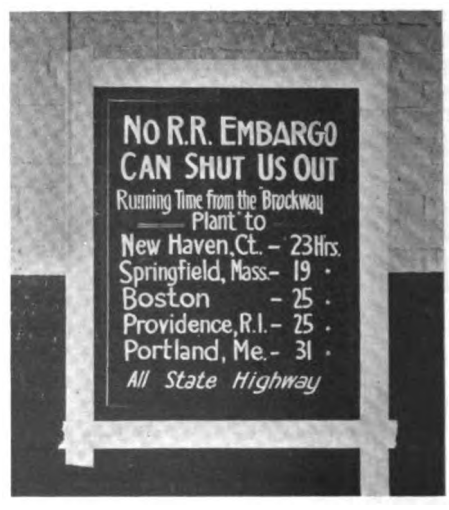
If they happen to be considered good looking, that is but an added advantage. First of all, they must deliver the goods. Everything else is secondary.

But how is the dealer of both passenger cars and trucks going to depart from his inbred habit of selling cars by appearances and sell trucks by proving to his prospects that they have the goods which will enable them to deliver? This seems difficult, but it is not. Why not show them the goods?

Showing Prospects the Goods

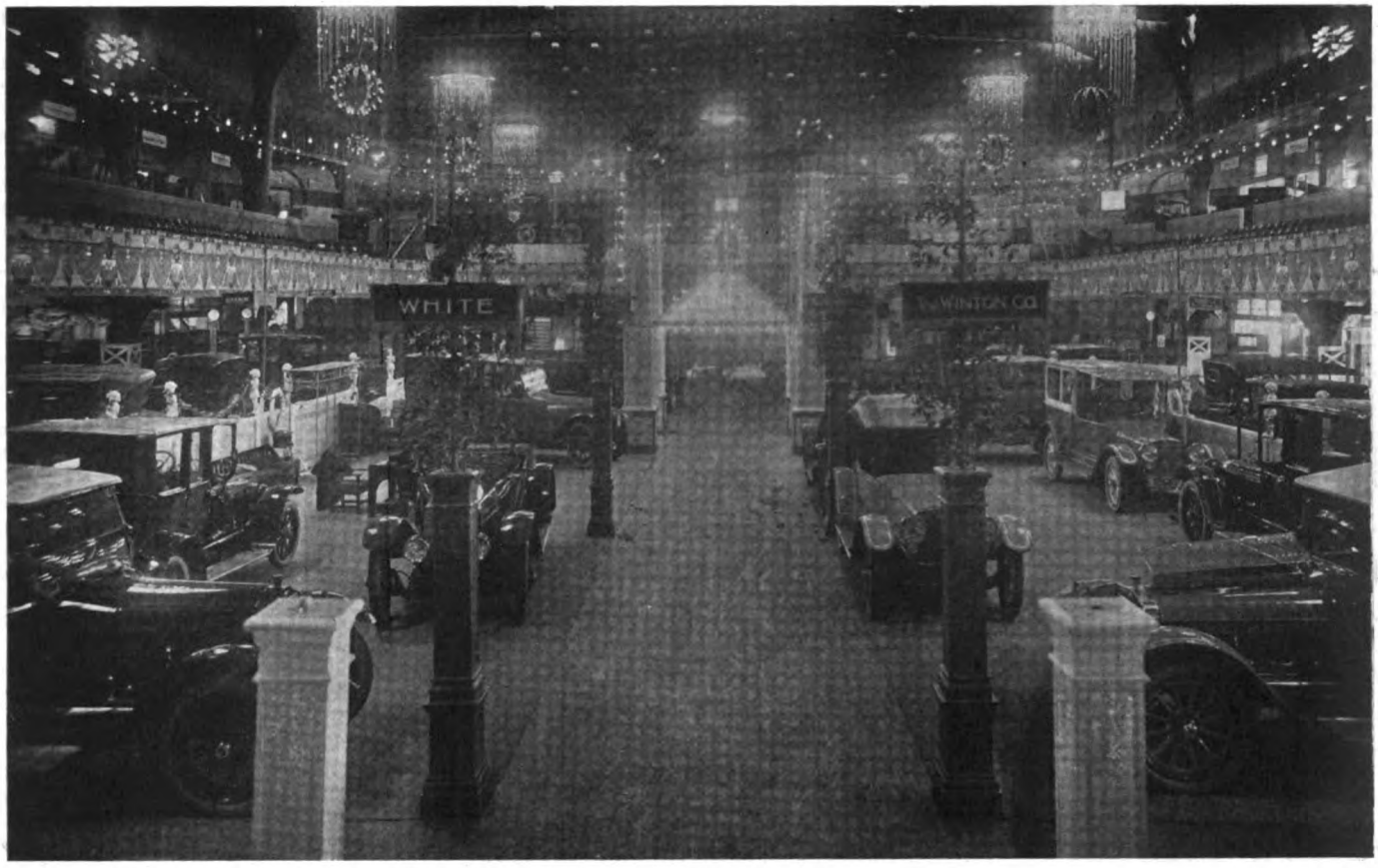
That is the simple answer. It is exactly what two enterprising manufacturers did at the Boston show. They showed their prospective customers the goods of their trucks which will enable them to deliver.

But how? Not by so many disconnected parts ,a crankshaft all by itself, a worm gear or a link of chain. These have little meaning to the average truck buyer. They must be put together. They must be associated with the remaining elementary parts of the truck.



Brockway took this means of "slamming" the freight embargo

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From the stage at the end of Grand Hall, otherwise known as the "Hall of Jewels," the spectacle was a blaze of glory. Notice the open, wide open White and Winton exhibits

This is analogous to one of the three great principles of the human mind, association, the other two being repetition and memory. They associated every working part with every other, and in a manner in which the average truck owner very seldom has the opportunity of seeing.

One turned a complete chassis over on its side, removed the lower half of the crankcase, the clutch housing, gearset and jackshaft, and then set all of these parts in operation by driving them off a pulley on the propeller shaft by means of an electric motor.

The other set his truck up on 5-foot horses under each wheel so that the prospective buyer might walk directly under the chassis and see it from a different angle than ever before.

In the first case, perhaps better than the second, the dealer showed every moving part correctly associated with every other, their sizes and how they worked.

So that prospects cannot be misled by mere size rather than strength, the wise dealer must point out of what material each part is made so that smaller parts of greater strength will not be at a disadvantage in comparison with more bulky units of lesser capacity.

While it must be admitted that the mere size of parts, the material of which they are made or even the manner in which they are put together for operation, is not always a true criterion of long and faithful service, the wise dealer remembers that most trucks are sold first and tested out second.

So long as no-action shows where trucks do not actually cover ground on their own wheels under their capacity loads are necessary, dealers are presenting the various parts in their proper association and in the most vivid and realistic manner.

They are working on the principle of the mind, associating every part of the truck with all the others in as striking a manner as possible.

They are then proceeding to the second great principle of the mind and repeating this association until it is indelibly impressed on the memory of the would-be buyer. Reaching that third and last principle of the mind, future sales of the truck will make themselves, provided it has the goods which will enable it to deliver.

Banner Truck Year Coming

Prosperity and the Need for Transportation Will Make Record Sales

BOSTON, MASS., Mar. 3—The year 1917 should be a banner year for the motor truck dealer in New England. New England is prosperous. While it is true that many New England farmers are gambling for potatoes instead of money and swapping potatoes for automobiles, it is possible that before the year is out they will be swapping potatoes for motor trucks if they want to sell their potatoes at all.

The present freight car congestion in the highly-industrialized sections of New England has opened up one of the greatest fields for the sale of motor trucks.

This is overland haulage.

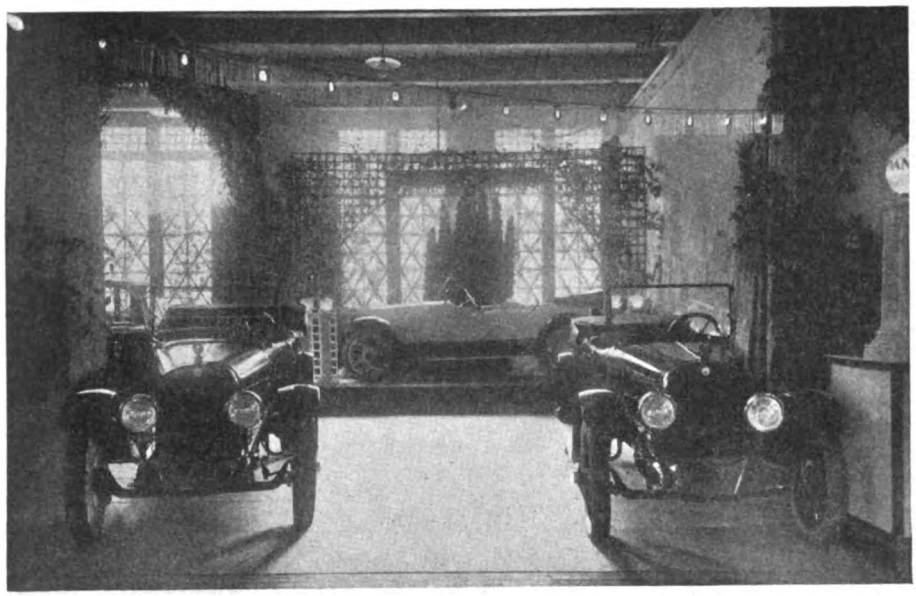
This does not of necessity mean one-way hauls of 100 or 150 miles. It does not mean the final delivery of goods from the retailer to the consumer. It does mean the haulage of goods from the point of production to main rail lines where service is more easily secured than on spurs, and it does mean the haulage of goods between cities.

This is a work in which the great possibilities of the motor truck have long been recognized. There should be more trucks in such service.

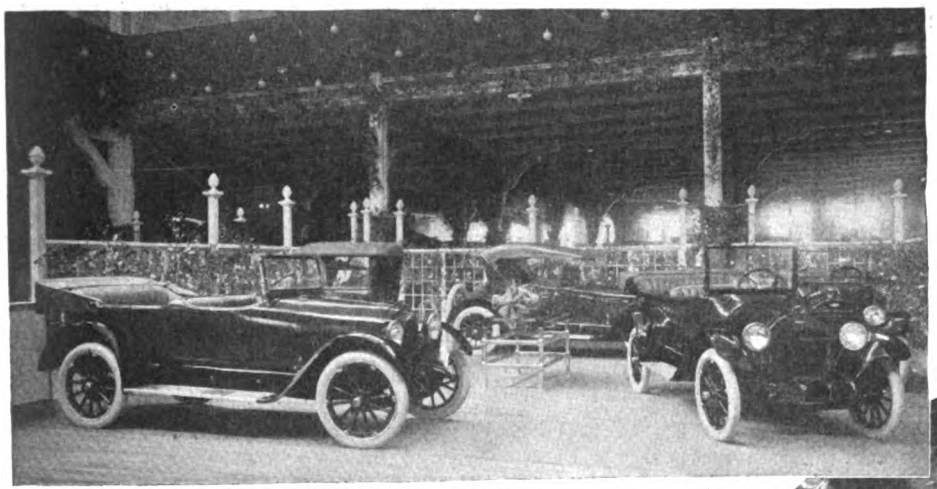
It has been said that the New Englander is slow to accept a new idea until he has to. This is exactly what has been done in the past 2 years. Many

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Looking After The Prospect's Comfort



Jordan achieved an effective setting by putting a white touring car on a raised platform at the back



Chevrolet had an unusually open exhibit. Cars were well placed and there was always room to move around

industries were forced to use trucks because in them lay their only salvation of moving goods expeditiously. In practically all such cases the truck owners have found that their vehicles have rendered a far quicker and less costly service.

Many such trucks will remain in the work permanently because of the better, quicker and more direct delivery afforded. For the same reason, more will be added.

This productive field is still open to the truck dealer and will continue notwithstanding the termination of the present European war. While a large proportion of our present exports are for military uses, the special commission sent to France to study trade conditions there has assured us that all foreign countries will require tremendous quantities of our national products after the war. Many of these products are made in New England and trucks will be required to haul them.

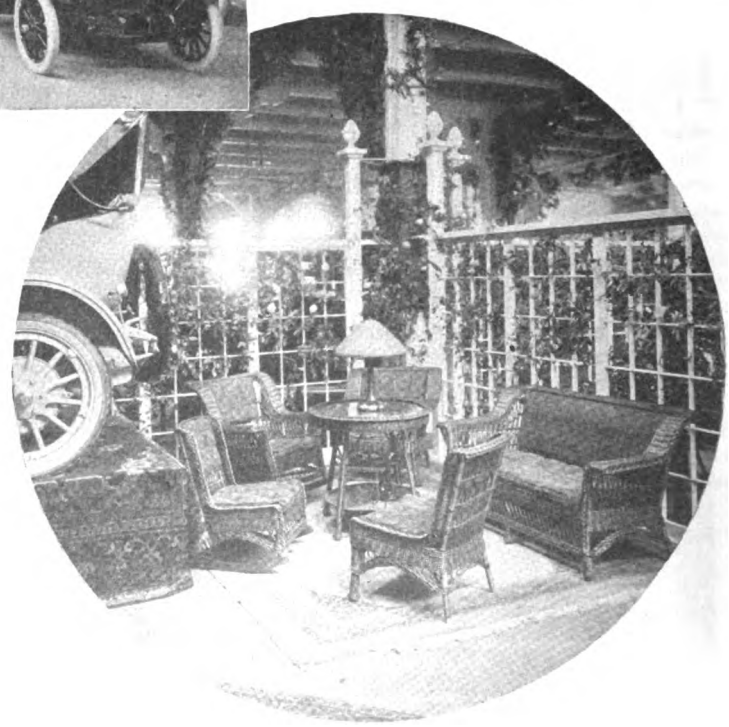
If the United States is in any way drawn into the war, conditions affecting the sale of motor trucks will be seriously altered. Wise dealers will advise their customers to buy now. If Uncle Sam is forced into the strife, he will absorb the great majority of the trucks now on the streets and most of the factories which make them.

There is precedent for this assertion in what has happened in every foreign country which all of a sudden found that it was impossible to fight in modern warfare without a vast fleet of motor trucks.

It is but natural that trucks in New England and along the Atlantic seaboard will be the first commandeered because it is more than likely that the most active seat of operations will be in that territory. Prudent dealers will advise their prospective truck purchasers to buy now if they expect to retain any vehicles for their own business should eventualities develop.

But the 1917 future of the truck in New England is not alone dependent upon war conditions or even upon overland haulage such as we know it to-day or as it will be in the later when 100-mile hauls may be the common rather than the unusual thing. The great industrial beehive of New England is continually expanding; more goods is being produced and its population is increasing. All these make for a larger use of trucks.

This increase will be general. It will not be confined to any one or two particular trades exclusively. Manufacturers of all kinds will need more trucks. So will the wholesaler and the retailer need trucks because he will have more



In the Chandler exhibit there was this oasis in the desert of aisles and cars. It was appreciated

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goods to sell and more goods to deliver to a larger population at greater distances.

That such conditions will result is evidenced by the records of the past 2 years in the six New England States with the exception of New Hampshire, which since 1915 has kept no separate records of the motor trucks and passenger cars in use.

In 1915 there were approximately 20,000 trucks in five New England States and 550 in New Hampshire. In 1916 the registration records in the five States show that there were approximately 31,500, an increase of about 11,500, or an average in percentage of 76. Of this average, Vermont's increase was the largest, 103 per cent; followed by Maine, 99 per cent; Rhode Island, 75 per cent; Connecticut, 60 per cent, and Massachusetts, 52 per cent.

While from these figures it would seem that Vermont offers the best market, Massachusetts really is the best selling field because of larger number employed, having 18,000 odd to only 728 in Vermont. Massachusetts trucks have multiplied almost four times in the last 5 years. She had 4087 trucks in 1912 and 18,194 in 1916.

While there is a demand for trucks of both small and large capacity in all of these lines, the most popular size in New England appears to be the 2-tonner. This is mainly because of the large suburban population around such cities as Boston, Springfield, Providence and Bridgeport.

UNLESS YOUR EXHIBIT AT THE SHOW is hooked to your business much of the value of your effort and expense at the show is lost. A letter to your prospect or owner list will work well. That shown above was used during the New York show by the Colt-Stratton Co. The show opened Jan. 6. The letter was sent Jan. 5.

COLT-STRATTON COMPANY

BROADWAY AT 57TH STREET

NEW YORK

TELEPHONE CIRCLE 1600

COLE MOTOR CAR CO. INDIANAPOLIS

DODGE BROTHERS MOTOR CARS

January 5, 1917

Mr. R. W. Sherman,
Motor World,
New York City.

Dear Sir:

There is a certain one of our Cole owners who drops in our salesroom every week or so to look over the new cars and exchange views with any salesman on the floor who isn't busy. Frequently he goes up to the third floor for a few minutes visit with our Service Manager. And we like him to come.

He knows more about the present day Cole than possibly any other Cole owner in New York. He is as thoroughly saturated as we are with the tremendous changes which have been going on during the past year and are still going on in the Cole organization and factory.

We wish you and all the rest of our Cole owners would drop in on us occasionally. We should like to point out to you the continually improved workmanship that goes into the Cole. We want you to know about the rapidly growing Cole sales; the production for 1917 which will be about double that of the past year. We want to show you the new models on display. We believe it is interesting to our Cole owners to know what is back of and ahead of the car which they have made their choice.

There has always been satisfaction in the operation of a Cole and now to satisfaction has been added pride of ownership.

You will see the reason for it evidenced in the Cole display at the New York Automobile Show in the Grand Central Palace starting next Saturday, January 6th.

The latest Cole production will be shown in Booth A8 on the main floor. We invite you to make yourself known as a Cole owner.

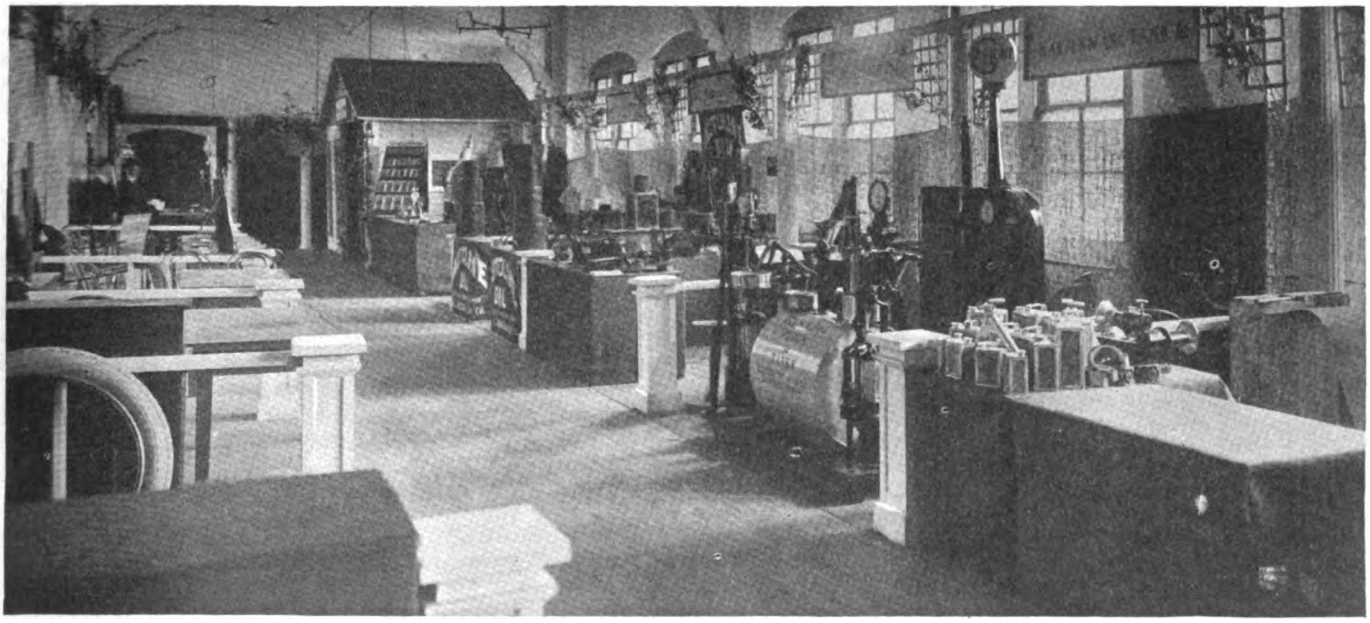
Very truly yours,

Colt-Stratton Company,

Harry L. Stratton

Vice-President.

HLS:L



Here is one of the broad accessory aisles showing the arrangement and scheme of decorating. Artificial flowers on the garage in the background gave it real "homey" appearance

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Nebraska Dealers Organize For Better Business

New State Body Will Affiliate with The National Association

OMAHA, NEB., Mar. 1—The Nebraska Automobile Trade Association was formed last night with an initial membership of over 100 dealers. The organization thus formed is affiliated with the National Automobile Trade Association, that is now in seven States, and possesses a total membership of over 2500 dealers.

The Omaha Automobile Trade Association were hosts of the organizing State dealers. J. C. Thorpe, general director of the National Association, carried on the work of organization. The Omaha organization, together with a similar organization at Lincoln, are to affiliate with the State association immediately.

There were about 500 dealers present at the meeting, and though all realized the necessity of doing something to better trade conditions, many let the proposed membership fee cut off their clear view of the benefits of the organization. This necessitated a complete discussion of what the organization could do, and how the $15 dues would be spent.

J. C. Thorpe outlined some of the problems of the automobile dealer, such as bad accounts, price cutting, high insurance rates, unfair contracts between manufacturer and dealer, and gave particular examples of how organization had removed these problems.

The money obtained from the fees is to be spent in the following manner: Part to the salary of a traveling secretary, who will secure new members, and determine the particular problems of the State dealers. Another part will be spent in a good roads movement. Nebraska is now losing $1,000,000 federal aid per year from the national government because of no concentrated effort to get that aid. A third part will be spent in publishing a bulletin that will keep the whole trade posted on what is being done, and what must be done.

The point was brought home that the present conditions in the trade to-day are the result of circumstances not found in any town, any country or any State, but in the whole country. Nothing except national organization and concerted action upon the cause of the trouble can do any good.

It was not that the dealers did not want to organize, or that they were unwilling to spend the organization fee. They did, however, have to be shown exactly how the organization could benefit them, and how the money was to be spent. From then on they were enthusiastic.

THE OFFICERS

President
Lee Huff .....Omaha

Vice-president
Elmer King.....Lincoln

Secretary-treasurer
Clark Powell.....Omaha

Three-year term directors
Ed Ogier .....North Platte
D. B. Young.....Fairbury
Ed. Rietz .....Hooper
John Brannigan ....Columbus
D. G. Bell.....York

Two-year term directors
C. R. Livingston...McCook
George Spiegel ...Beatrice
Gus Sherman .....Hastings
A. W. Breyer.....Norfolk
A. V. Zabell.....Auburn

One-year directors
James Cornish ....Tekameh
John Mounich .....Freemont
Mont Harris .....Omaha
Geo. Petring .....Nebraska City
W. S. Jackson.....Valentine

What the Association Will Do

OMAHA, Mar. 1—Once organized, the Nebraska dealers have immediately tackled their trade problems. Special meetings are being held to-day for an intimate discussion and exchange of ideas.

The meetings are being held under the direction of J. C. Thorpe, general director of the National Automobile Trade Association. There is nothing formal about the meetings, 25 or 30 dealers gathering in a room, asking questions and discussing ways and means. The Nebraska association is starting right, and not waiting to see what is to happen.

The first question discussed was that of a standard service policy. Thorpe outlined the proposed standard service and parts policy of the N. A. C. C., and commended the motive of the national chamber for its work. However, he objected to the development of a policy which should be proposed for the dealer's use without the dealer being heard in the conference called for the discussion of the subject.

This opinion was agreed to by the dealers, and a resolution proposed and



Lee Huff, Omaha

adopted. This resolution was: That the Nebraska Trade Association shall support the activities of the National association office in the development of a standard service and parts policy that shall be acceptable to both manufacturer and dealer, and in the interests of the car owner.

Other phases of the manufacturer-dealer situation were then discussed. Contracts between the dealer and the manufacturer can at present be too readily changed by the dealer, was the opinion of the dealers. The returnable deposit on cars was also considered to work a hardship on the dealer, because it made him finance the manufacturer.

Better business and accounting was then taken up. Many of the dealers do not know the cost of doing business and work on the basis that if they buy an item at $500 and sell it for $550 they are making $50 profit.

Due to the rapid growth of the trade throughout the State price-cutting has become bad. New concerns starting cut prices to get trade. Not having the capital to swing the business on this basis, they fail. The successor follows the same practice.

Hardware dealers are also taking on automobile sundries as a side line. As these are used as feeders to their legitimate business, prices are reduced below list. The accessory dealer has to bear the burden.

Suggested methods of handling this condition, and the effect of the Stevens bill were outlined by Thorpe and discussed by the dealers.

Another bad condition in the Nebraska trade was brought to light. In many parts of the State, in towns of 10,000 population, the live storage rates are $3 per month. This amount will not even pay for the proportional part of the heat and light required for the car. Yet the garagemen have to stand the burden, because of lack of mutual agreement and understanding of the cost of doing business.

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Get Set

IN a very few days summer business will be upon you with a whoop and a roar. Are you ready? The first days of spring will drive the buyers of cars and accessories from under their winter blankets and they will begin to flock down upon the dealer and garageman for goods and service.

Are you ready?

There are a lot of little things that ought to be done to put your place of business in shape. It develops these little rough spots during a summer and winter and a spring tonic is necessary.

Better get set!

Take a walk around your establishment and note the little holes in the floor; see the old iron and tires that have accumulated in that corner; see that broken window pane; see where the weeds have spoiled what was meant to be a plot of grass; see how the sun and the wind and the rain and snow have worn the finish off the woodwork around the display window; see how the dust and light of a year of business have dulled the finish in the salesroom.

Look with a critical eye and you'll see countless little things that need touching up.

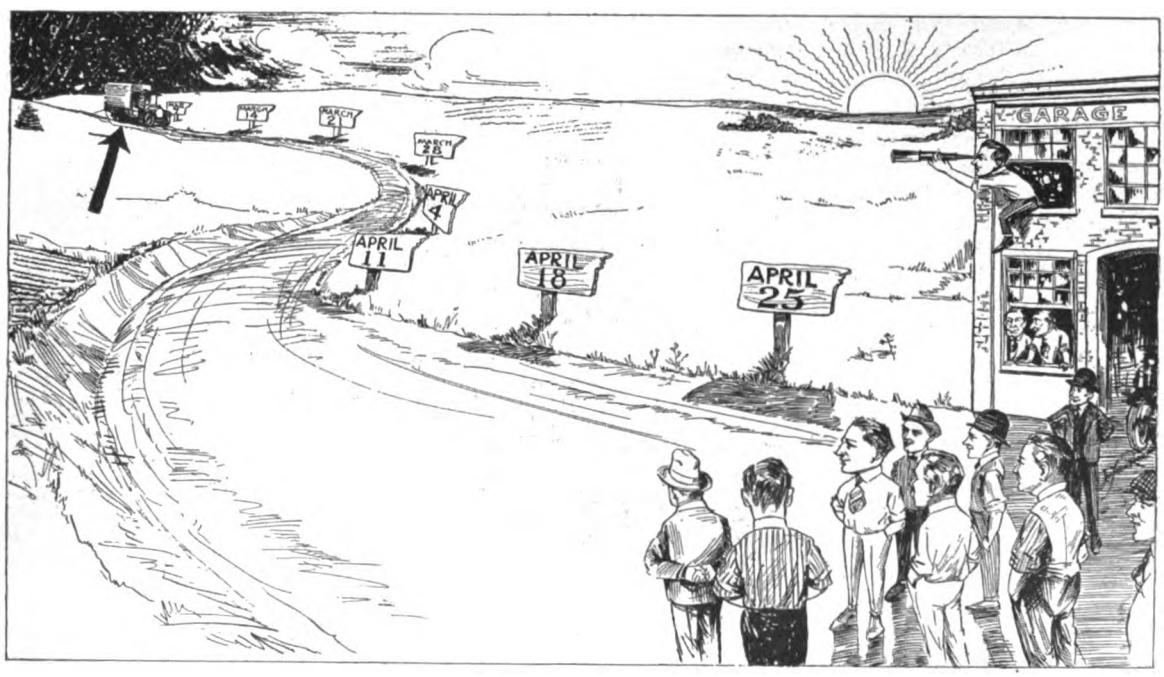
Fix up! Repaint! Repair! Redecorate! Clean up! Scrub out! Make things spic and span and new and shining!

Get set!

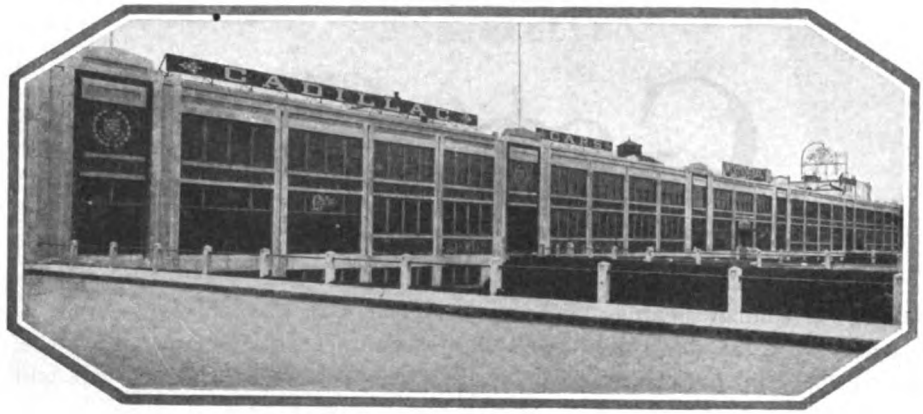
When the rush comes you'll have no time to fix things. You'll have to get along as best you can just as the rush finds you, and if your place isn't up to snuff it may turn a few dollars some other fellow's way. Don't let that happen!

The man who will get MORE THAN HIS SHARE of business is the man who is ALL SET when the rush begins.

The time to get set is NOW.



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Boston's motor car row is built of concrete and steel and glass

THE PRIDE *OF THE* CITY

In no city in the world has there been such spectacular development of salesrooms and service stations as in Boston. Today Boston has a row of magnificent buildings where yesterday she had a row of shacks.

BOSTON'S automobile row is worth a quarter of a million dollars a year in taxes to the city. The total value of the city's magnificent aggregation of motor car salesrooms and service stations is close to $20,000,000. Yet only a few short years ago—in 1905, to be exact—the total valuation put on land and buildings was less than half this.

When, in 1905, the tax assessors got busy and wrote down figures for the row they put the valuation at $7,075,000, and this included much land upon which no one dreamed motor buildings would rear their heads. If the total had been kept to real estate actually occupied by dealers the figures would have been 50 per cent less.

And now the city of Boston, with a tax rate of $18 per thousand, is collecting annually more than $250,000 from its automobile row. And this, according to G. R. Merrill of the real estate firm of Coffin & Taber, which has been responsible for the erection of some of the largest buildings on the row, is an increase of 97 per cent. Merrill compiled the valuation statistics given elsewhere in this article.

This total of a quarter of a million dollars is for the real estate alone. Nothing is included for equipment and machinery, without which the industry could not exist.

All the real estate and buildings which give this valuation are in a comparatively straight line along Commonwealth Avenue; the big structures in other parts of the city and across the river in Cambridge, such as Gray & Davis and Ford and other service stations, are not included.

Strictly speaking, there are three motor centers in Boston. The older one is in the vicinity of Park Square and Columbus Avenue. It was there that the



When Alvan T. Fuller put up his magnificent Packard building at the extreme end of Commonwealth avenue it was called "Fuller's Folly." Now everyone is following Fuller. This single building now is one leg of a U, which about triples the floor area

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Boston's Modern Motor Car Buildings



Homes of the Kissell and White



Goodyear has a magnificent building



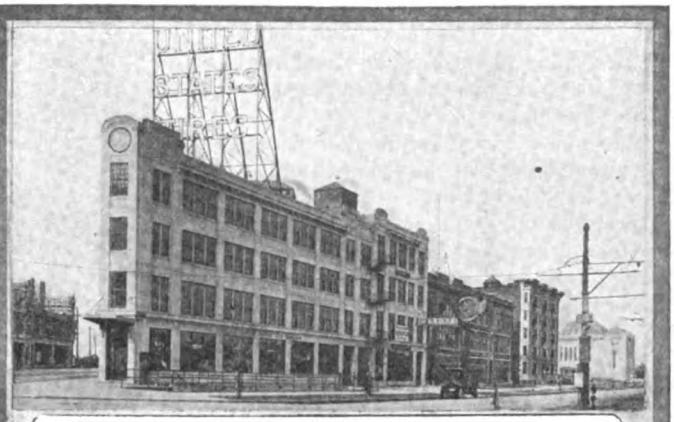
Where accessory merchants gather



Autocar sales and service quarters



Peirce-Arrow and Mercer headquarters



Where U. S. Tires are sold



Homes of Studebaker and Jeffery



Three more modern buildings



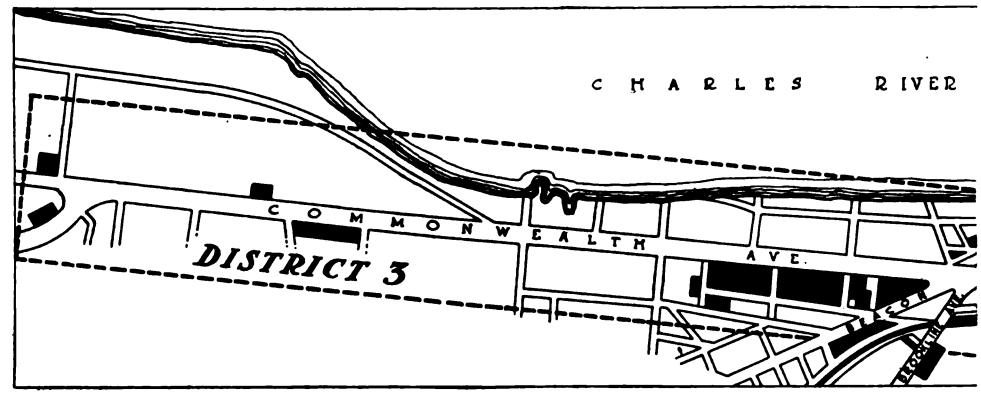
Stately buildings are the rule



Where Franklin and Chalmers are housed

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How Boston's Automobile Row Has Moved



When "The Row" first came into being it was a little bit of a square grew a lot more. Now it has moved out still further and its beautiful

bicycle stores were numerous, and the natural evolution followed when the dealers took on motor cars. Columbus Avenue begins at Park Square and runs westerly, so that was the Mecca for those seeking machines.

There one found the cars now widely known and some that have passed out of existence. Looking back to 1905, when the business might be said to be "coming," one found such cars listed on Columbus Avenue as Elmore, Ford, Packard, Grout, Rambler, Haynes, Apperson, Reo, Marion, Knox, Stearns, Peerless, Pope Toledo, Marmon, Stevens Duryea. Around the corner on Berkley Street the Winton and Locomobile had quarters, and the Columbia was on Stanhope Street, with the Buick and White on Tremont Street.

Boylston Street was then a row of dwellings. A few of the buildings had been used for business purposes. But the motor car had not made much headway there. The Massachusetts Automobile Club had built a fine place there, and the Pierce-Arrow salesrooms shared the monopoly of the street with the Napier.

Boylston Row Is Started

But a start had been made, and in 1906 the real invasion of Boylston Street began. At that time it was impossible to house the growing business on Columbus Avenue, even after the Motor Mart was built, the first real structure devoted to motor sales and service stations in the one building.

Another factor in driving the salesrooms to other quarters was the fire law regarding the storage of gasoline and garages. Owners of property on Boylston Street saw their opportunity, and they began remodeling or rebuilding to accommodate the motor trade.

As the new buildings were allowed to have storage tanks underground, that simplified matters. But they could not all get places on Boylston Street, and so some of them merely turned the corner and located on Massachusetts Avenue. So here was the second motor center beginning at Copley Square and reaching west, with places on Massachusetts Avenue forming the top line of a T formation.

More Cars Move In

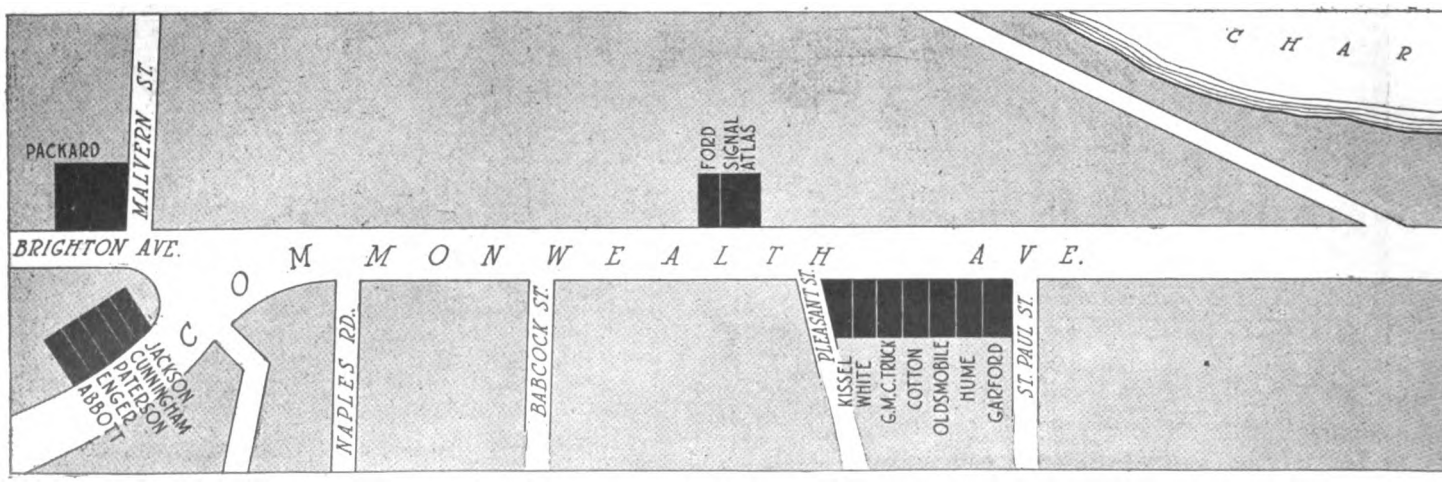
In that year, 1906, the completion of the Motor Mart in Park Square allowed the housing of more cars, and to that district were added such cars as the Wayne, Crown, Speedwell, Royal Tourist, Mitchell, Mercer, Oldsmobile, Berkshire, etc. The Boylston Street colony contained additions, such as Franklin, Lozier, Pierce-Racine, Welch, Stoddard-Dayton, Frayer-Miller, Shawmut, Imperial, Darracq, while around the corner on Massachusetts Avenue the Maxwell and Premier held sway. But that was the end of the motor district westerly.

The panic of 1907 did not help in the move of expansion, but it did not deter the dealers from holding to their good sites. There were changes from time to time, but the men kept pegging away.

With the clearing of the financial atmosphere the motor industry again took a boom. Out to the west of Massachusetts Avenue on Commonwealth Avenue and Beacon Street there were thousands of feet of vacant land. To the people interested in real estate and the future growth of the city it seemed apparent that it was going to be undeveloped for at least 50 years. The builders of apartments had jumped out beyond it because much of the land was below the street level and was not considered suitable. The Fenway section was given over to semi-public buildings, like hospitals, schools, museums, etc.

Fuller the Pioneer

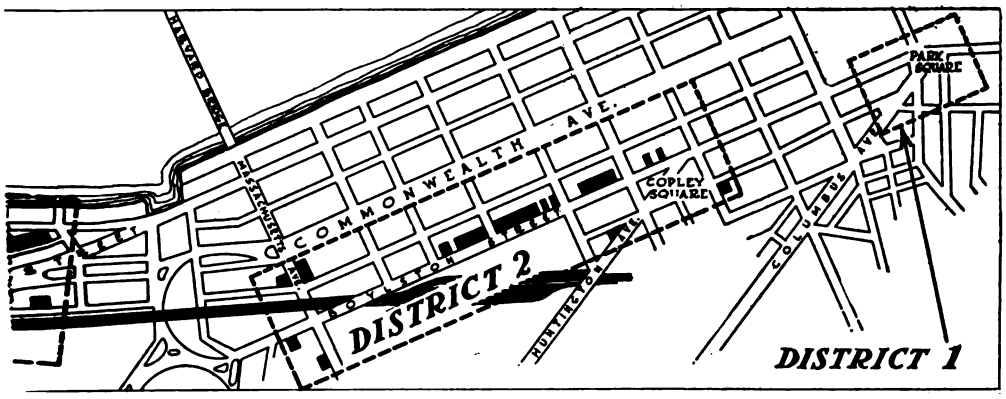
Alvan T. Fuller, the Packard dealer, was the first to make a jump. To the amazement of everyone, he ordered built a big four-story structure at what is now the extreme end of the motor colony on Commonwealth Avenue. When he made



Commonwealth Avenue in Boston is the city's broad the city it stretches miles away to the great open spaces. ing and soon one whole side will be lined with mod

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Steadily Out Toward The Open Spaces



n the Back Bay section of Boston. Then it moved along a little and uildings are among the finest of their kind anywhere in the world.

the move many of the dealers shook their heads. They said he was crazy, and the building was named "Fuller's Folly" by some and "The Packard Mausoleum" by others.

But he went ahead, and when it was finished he held "open house." Many went. He inaugurated a Washington's Birthday opening, with an orchestra, floral decorations, engraved invitations, etc. And the place was packed, while all the other salesrooms were closed.

This year many followed Fuller's lead and some tried to outdo him. Fuller had realized that the motor car bridges space rapidly, and also the fact that owners of high-priced cars would take them anywhere to be repaired where the service was good; also that prospective buyers of such cars would not mind spending an extra hour going out to see his cars when they were going to invest several thousand dollars. He was right.

A Building Worth $400,000

For a time he continued his downtown salesrooms in the Motor Mart, but finally moved his entire business out to a structure that represented close to $400,000. To the motor dealers it seemed an enormous investment. But it gave him what he wanted—a real service station and salesrooms under one roof. And now he has had to double it.

Following the Packard Trail

That gave others heart. Eugene Noble Foss, at that time prominent politically as governor, seeing the possibilities of the motor industry, started building motor homes. His property was at the other extreme of the district, at Commonwealth Avenue and Brighton Avenue. There he reared up the splendid Peerless Building, now occupied jointly by that company and the Maxwell. As he had more land left, he put up others next door and soon there was a little colony all by itself, whore now one finds the Firestone Tire, Hudson, Autocar. King and the Milburn Electric.

Commonwealth Avenue began to look good to others, and about that time there was erected the long building now occupied by the Locomobile, Winton and Cadillac. The Matheson had the end now occupied by the Cadillac.

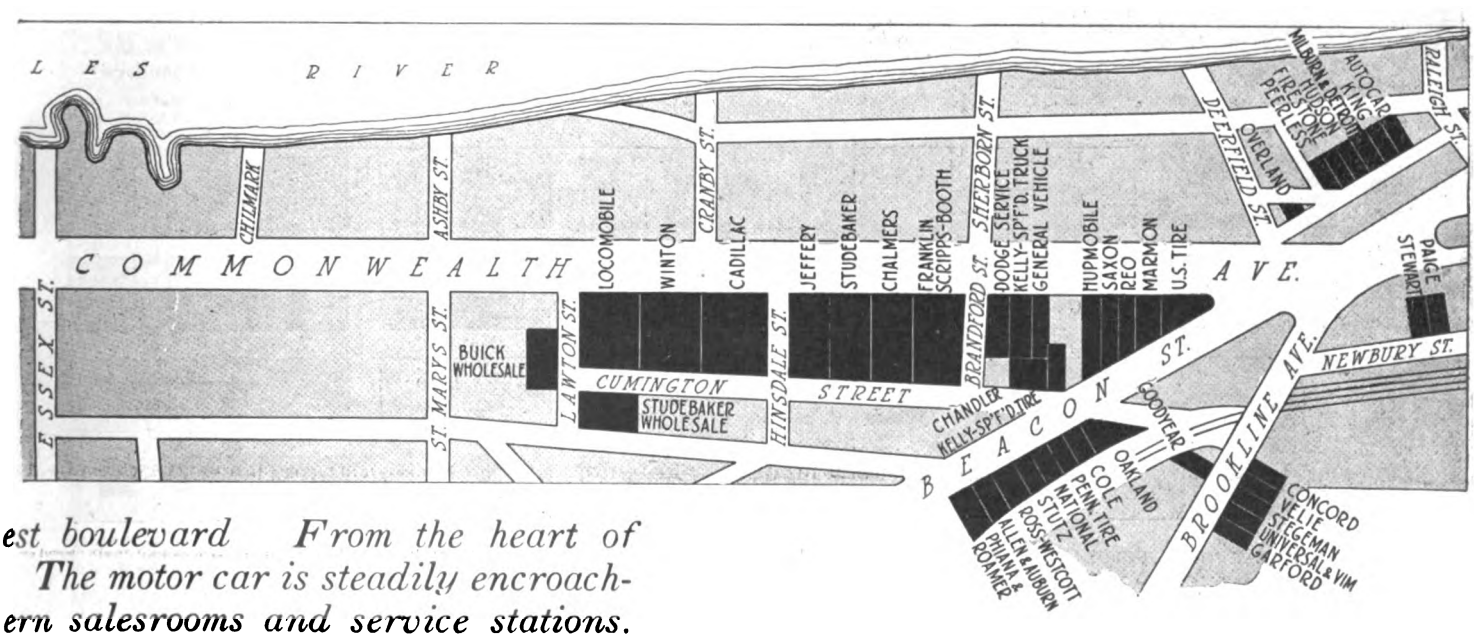
Meanwhile the Boylston Street district was growing, too. The Diamond Tire Co. and the B. F. Goodrich Co. erected buildings. A new building was put up for the E-M-F. Part of it was occupied by the American and Knox agencies. The Chalmers and Alco had new places, and the Oakland, Everitt, Warren, Overland, National, Fiat, Buick and Stevens-Duryea were tenants on that street. The Thomas had a big four-story structure built, a splendid one, now occupied by Dodge. The United States and Michelin tires also joined the colony. The Rambler, Velie and Oldsmobile were added to the Massachusetts Avenue colony. And the White was intrenched on Newbury Street.

An Exodus to Commonwealth

There did not seem to be any more room around Boylston Street, and Commonwealth Avenue no longer scared the dealers. So when plans were made for buildings on that thoroughfare, recognized as the leading one in and out of Boston for the West and South, the real estate dealers had no difficulty in getting the dealers to sign up for leases.

Kissel was one of the first to go out in the far section, and then there was erected a building for Rapid trucks. Next door the White Co. erected a splendid place. Then the Wentworth-Fosdick Co. took over a place and the Dort and Marion were there. It now houses G. M. C. trucks. Next door the Oldsmobile has its place. The Hume Carriage Co., body maker, also was one of the earliest in that section. These places are in a colony by themselves.

Down the avenue toward Boston the development was going on rapidly, and the Buick and Studebaker companies erected big service and wholesale departments right back of the Winton at the



est boulevard From the heart of The motor car is steadily encroachern salesrooms and service stations.

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corner of Lawton Street. At the other corner went up the buildings now occupied by the Jeffery, Studebaker, Chalmers, Franklin and Scripps-Booth. These places becoming fixtures a building was put up at the apex of Beacon Street and Commonwealth Avenue, into which the United States Tire Co. moved, the Lozier taking a portion of it. Later the Marmon succeeded the Lozier.

Accessory Dealers Move Out, Too

With the years passing along the development of the section directly across from the Packard was logical and so a building was put up there for the Case and Jackson. It is now occupied by the Jackson, Abbott, Paterson, Stewart-Warner and other accessory companies. On the other corner the McFarlan is in where the Imperial was sold, and the Packard has another new building for its used cars next door. Some accessory houses are there also.

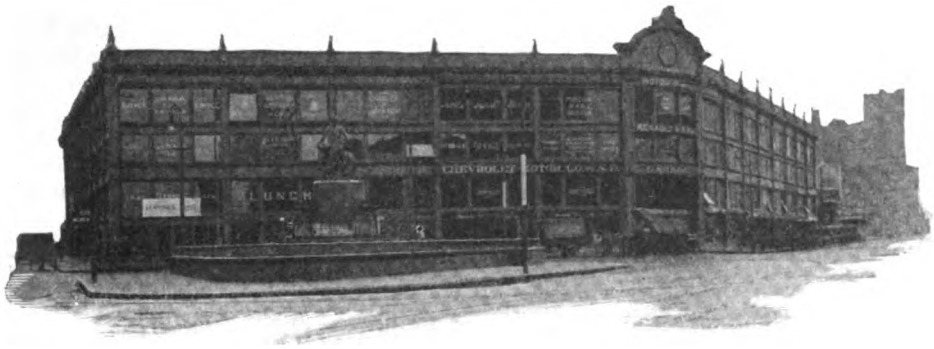
It seems rather a coincidence that when development was started at one end it was a signal for work at the other end to balance things for down at what is now called the Five Corners more buildings have been put up. One of these is the splendid home of Goodyear tires, one of the finest in Boston. Kelly-Springfield tires also has a new place nearby and the Garford truck had a place of its own, all on Beacon Street, until it moved into its new home on Commonwealth Avenue.

Still there was not room enough for all of them. So a new place was put up which now houses the Reo, Saxon and Hupmobile side by side. And nearby another new building is occupied by the Paige, Detroit and Stewart. Right next to the Peerless building is the new home of the Overland, even though that car had a new salesroom on Massachusetts Avenue. Just finished is a building that is used jointly by the Kelly - Springfield trucks, Franklin and Dodge as service stations. Another new one houses the Cole, Oakland, National, Stutz, Ross, Anburn and Allen. Velie has just entered a new home nearby.

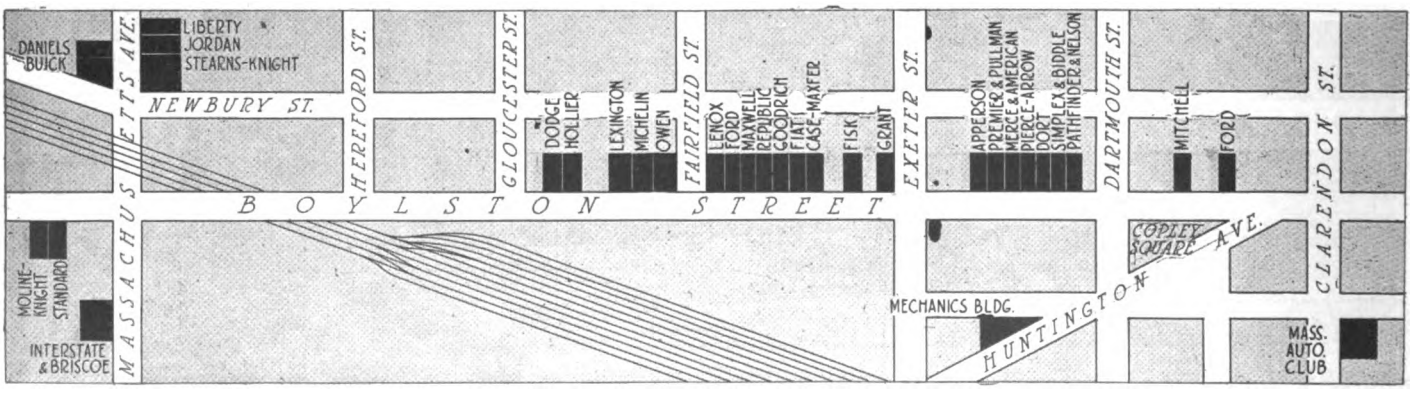
While all these new places have been added to the third district, the second district has held its own, for when one firm made a move off Boylston Street some other went in. This has been brought about by the great increase in dealers due to the shows. The Pope-Hartford Co. was organized and it later took on the Mitchell. It is in Copley Square. The Lenox is in the former Studebaker home. The Owen Magnetic

How Values in District 1 Have Grown

Company	1905 Val.	1915 Val.	Net Increase
Chicago Pneumatic Tool Co	$25,500	$30,500	$5,000
Geo. W. McBride			
Kelleher Auto Co			
Columbus Motor Co			
Park Sq. Used Car Co			
Auto Supply Co			
Prest-o-Lite Co			
Wm. H. Reid & Co			
Remy Electric Co	620,000	897,000	77,000
Rutherford Rubber Co			
Improved Double Tread Co			
Williams Auto School			
Hoeffecker Speed & Mile Meter			
Haynes Motor Co			
Chevrolet Motor Co			
Coward Supply Co			
Park Sq. Garage			
Akron Tire & Rubber Co	52,500	78,000	25,500
Brophy, Barrabee, Brophy	20,600	37,000	16,400
National Tire & Rubber Co	.....	.....	.....
Allen G. Adams Co	15,000	55,000	40,000
Langdon Motor Car Co	.....	.....	.....
Automatic Appliance Co	73,600	80,800	7,200
Watson J. Walker	22,500	24,900	2,400
Motor Parts Co	215,500	286,200	70,700
Hub Vulcanising Co	.....	.....	.....
J. W. Potter Co	.....	.....	.....
Chas. E. Miller	138,000	147,600	9,600
Geo. R. Bascom	.....	.....	.....
Percy Ford	34,000	34,000	None
Collins Co	.....	.....	.....
Post & Lester Co	230,300	235,000	4,700
Standard Auto Supply Co	171,000	171,000	None
Mass. Auto Club	108,000	400,000	292,000
Cort Garage	33,000	44,300	11,300
Amory Garage	34,100	92,000	57,900
McNeil & Wade	3,400	5,800	2,400
Philadelphia Storage Battery Co	5,600	6,800	1,200
Boston Oil & Gasoline Co	3,700	4,400	700
Peerless Welding Mfg. Co	13,900	13,900	None
G. R. Bascom	17,200	17,200	None
Perry Bros	13,200	13,200	None
Kelleher Auto Co	.....	.....	.....
Samuel M. Miller	10,300	10,300	None
W. J. Forbes	14,700	16,500	1,800
Hall & O'Brien	.....	.....	.....
Parnell & Tarbell	19,600	19,600	None
Pattinson Mfg. Co	.....	.....	.....
J. F. Ollis	71,500	75,000	3,500
Standard Auto Top	.....	.....	.....
O'Lallor Auto Co	.....	.....	.....
A. Strand & Co	.....	.....	.....
Jones & Erwin	.....	.....	.....
Webber Mfg. Co	.....	.....	.....
Kenneth & Skinner	.....	.....	.....
D. H. Collins	.....	.....	.....
Hoyt Welding Co	.....	.....	.....
L. H. Brassil	.....	.....	.....
Bilodeau Ball Bearing Co	41,700	46,000	4,300
Total	$2,008,400	$2,842,000	$843,600



This is the old Motor Mart in the old district. It was the first modern motor car building in Boston



Here is what Bostonians call District 2 so far as motor car centers are concerned. It has grown too small now to house all the trade, which is why District 3 was born and is growing

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What Boston's Row is Worth To-day

District 2

Company	1905 Val.	1915 Val.	Net Increase
Cut Price Auto Co	$77,000	$120,000	$43,000
Reliance Cord Tire Co	179,000	184,000	5,000
Ford Motor Co	74,000	125,000	51,000
McGraw Tire Co	44,000	78,000	34,000
Dayton Tire Co Pope-Hartford Co	217,000	312,000	95,000
Portage Tire Co	400,000	475,000	75,000
Simplex Biddle Roamer	65,000	88,000	32,000
J. W. Maguire Co	223,000	328,000	105,000
Mercer Auto Co	64,000	96,000	32,000
Premier-Pullman	208,000	270,000	62,000
Apperson	40,000	61,000	21,000
Grant Auto Co	95,000	116,000	21,000
Fisk Tire Co	25,000	99,000	73,500
A. L. Cherry Co Green & Swett Co	52,000	137,500	85,500
Bell Motor Co Fist Motor Co	82,000	135,000	53,000
Goodrich Rubber Co	46,000	147,000	101,000
Republic Rubber Co	23,000	56,000	33,000
Maxwell	46,000	155,000	109,000
Ford Hardman Tie Co Lenox	51,000	120,000	69,000
Owen Magnetic Michelin Tires	57,500	140,000	82,500
Lexington	45,000	65,000	20,000
Hollier Motor Co	30,000	62,000	32,000
Dodge Bros. Motor Co	60,000	135,000	75,000
Acme Torsion Spring Co Potter & Co	24,000	27,500	3,500
Napoleon Motor Co	18,500	21,500	3,000
Vacant	30,000	62,000	32,000
Vacant	26,000	33,500	7,500
Ajax Tire Co	16,000	25,100	9,100
Eisner-Lenk Co	16,000	22,600	6,600
Standard	32,000	75,300	43,300
Splitdorf Electric Co Turner-Ring Co Apple Electric Co Liberty Jordan J. H. MacAlman Co Hillman Auto Supply Westinghouse Air Spring Co Master Carbureter Sales Co Boston Auto Top Co	32,000	55,300	23,300
Patch, Griffin & Caulfield	10,100	28,000	17,900
Fenway Garage	40,380	230,000	189,700
Robert's Garage	64,000	80,000	16,000
Nolan & Gallagher	18,500	18,500	.....
Motor Car Service Co	57,000	57,000	.....
White Garage	47,600	116,000	68,400
Fracto Specialty Co	20,000	17,000	*3,000
McNane Tire Co H. Ross Maddocks Co Paige Motor Car	14,000	54,100	40,100
George Jaycock London Garage Andrew L. Hanson Edwin H. Wilbur J. W. Bowman & Co Ahlberg Bearing Co	9,500	54,600	45,100
Mass. Auto Ass'n	115,500	410,000	294,500
Metropolitan Motor Assn Randall-Miller Co Buick Boston Co			
Mass. Tire Co Mass. Motor Sales Co	100,000	100,000	.....
John & Arthur Hyatt Roller Bearing Co Briscoe	74,000	146,200	72,200
Inter-State W. J. Connell Co Batavia Rubber Co	55,500	85,400	29,900
Federal Rubber Co	18,500	33,000	14,500
Walter H. Williams Co	37,000	68,800	31,800
Empire Rubber Co	18,500	38,500	20,000
American Motor Equipment Co	18,500	38,500	20,000
	$3,368,080	$5,747,900	$2,379,820

*Loss.

District 3

Company	1905 Val.	1915 Val.	Net Increase
Autocar Co	$76,000	$173,000	$97,000
King Motor Co	.....	.....	.....
E. Y. Stimpson	.....	.....	.....
Hudson Motor Co	.....	.....	.....
Firestone Tire Co	81,000	218,000	137,000
Peerless Motor Co	.....	.....	.....
Rauch-Lang Co	.....	.....	.....
Maxwell Motor Co	75,000	263,000	188,000
Overland Motor Co	123,000	348,000	225,000
Kelly-Springfield Tire Co	19,800	68,300	48,500
W. H. & Webster Jones Co	32,400	91,000	58,600
General Vehicle Co	.....	.....	.....
Chandler Motors of N. E., Inc	39,600	112,200	72,600
Kelly-Springfield Truck Co	.....	.....	.....
Franklin Motor Co	.....	.....	.....
Dodge Bros. Motor Co	54,600	154,700	100,100
Oakland Motor Co	18,000	76,500	58,500
Cole Motor Co	13,200	55,400	42,200
Becker-Stutz Motor Co	13,200	55,400	42,200
Allen-Auburn Motor Co	13,200	55,400	42,200
J. A. Travers Co	.....	.....	.....
Northland Tire Co	15,600	33,000	17,400
P. L. Thompson	.....	.....	.....
Gibney Tire & Rubber Co	.....	.....	.....
Swinehart Tire Co	.....	.....	.....
Universal Car Co	22,700	94,000	71,300
Boice-Perrine Co	.....	.....	.....
Stromberg Carbureter Co	.....	.....	.....
Vim Truck Co	.....	.....	.....
Cadillac Motor Co	.....	.....	.....
Garford Truck Co	.....	.....	.....
H. W. Johns-Manville Co	.....	.....	.....
Boice Motors Specialties	30,300	155,000	124,700
Abbott Downing Co Velie Co. of New England Wagner Electric Hill-Smith Metal Goods Co Mohawk Tire Co	13,500	101,000	87,500
Stegeman Six Truck	.....	.....	.....
Phila. Storage Battery Co	10,000	35,000	25,000
Goodyear Tire & Rubber Co	75,500	280,000	204,500
Overland Motor Co	39,800	250,000	210,200
Fenway Garage	40,300	230,000	189,700
Taxi Service Co	36,600	105,000	68,400
Regent Garage	23,000	75,000	52,000
Somerset Garage	14,100	33,000	18,900
Studebaker Co	8,700	48,000	39,300
Buick-Noyes Co	12,000	65,000	53,000
Franklin Motor Co	.....	.....	.....
Scripps-Booth	.....	.....	.....
Chalmers Motor Co	72,200	133,000	60,800
Studebaker Corp'n	.....	.....	.....
Donovan Motor Car	45,000	78,000	33,000
C. P. Rockwell & Co	91,800	170,000	78,200
Cadillac Motor Co	.....	.....	.....
Winton Co	.....	.....	.....
Locomobile Co	205,600	302,000	96,400
R. E. Taylor Corp'n	.....	.....	.....
Garford Truck	35,000	95,000	60,000
Hume Carriage Co	.....	.....	.....
S. J. R. Motor Sales Co	16,000	53,500	37,500
Oldsmobile Co. of N. E.	11,000	26,800	15,800
Columbia Tire & Top Co	.....	.....	.....
L. M. Cotton	.....	.....	.....
Henderson Truck Signal Truck Ford Agency	30,000	90,000	60,000
General Auto Dealers	9,000	30,600	21,600
G. M. C. Trucks	10,000	28,000	18,000
White Co	45,000	151,000	106,000
Kissel Kar Co	16,000	60,000	44,000
Mitchell-Smith Co	2,400	15,000	12,600
Imperial Motor Co	1,200	8,000	6,800
Packard Motor Co	72,600	215,000	142,400
Packard addition	25,000	275,000	250,000
Packard Annex	11,000	68,000	57,000
Westinghouse Air Spring Co	.....	.....	.....
Wm. H. Flaherty	.....	.....	.....
Jackson Motor Car Co	.....	.....	.....
Homer F. Goodrich	.....	.....	.....
Stewart-Warner Speedometer Co	.....	.....	.....
American-La France, F. E. Co	19,500	168,300	148,800
Cunningham	.....	.....	.....
Enger Twin Six	.....	.....	.....
Crow Motor Car Co	.....	.....	.....
N. E. Patterson Co	12,500	77,500	65,000
Total	$1,631,900	$5,219,600	$3,582,700

is where the Hudson used to be. The Apperson has the salesrooms first opened by Dodge. Buick went in where the Oldsmobile had a place on Massachusetts Avenue, and the Jordan, Liberty and Stearns are side by side, while across the street the Daniels is in the salesrooms used by the Stevens-Duryea. The Standard, Interstate and Briscoe are nearby. Maxwell is to move to the Diamond Tire Building on Boylston Street, and Chandler has just moved into the Commonwealth Avenue colony.

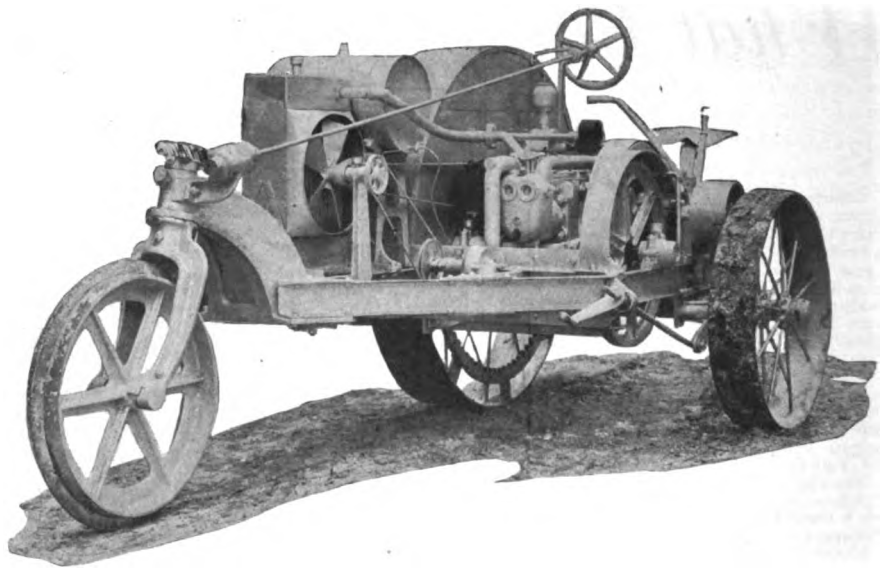
But district one is not dead, although it has not increased in value, that is to any great extent. There are still a few motor companies down there such as the Haynes and Chevrolet. However, the section has grown to be a rather big retail center for the accessory men. All along Columbus Avenue the accessory men have moved in where once the cars held sway.

Now the original Boston motor district presents a fine appearance, stretching along in one general direction from east to west. And where once the big cars held sway in district number one the accessory men have formed a colony of their own.

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500 Farm Tractors—*For Cash*

Proof That They *Can* Be Merchandised



Hall Bros. & Reeves, Kansas City, sold over 500 of these—and got cash for every one

By Stanley P. McMinn

WHEN Hall Bros. & Reeves, of Kansas City, first cast eyes on the farm tractor, the glance was a not altogether reassuring one. Almost everywhere the farm tractor was little more than a white elephant on wheels. The farmer bought it because his enthusiasm for the new type of farming egged him on to make a purchase without proper investigation. The farmer looked at the tractor askance—and wouldn't even turn his head to look at a tractor dealer.

This was the state of affairs when Hall Bros. & Reeves entered the tractor selling field.

But they entered the field with a brand new idea—or rather with several brand new ideas.

The result?

They sold upward of 500 Bull tractors last year in the State of Kansas; they have a list of 75 tried and true tractor dealers.

The ideas with which Hall Bros. & Reeves entered the tractor business are not new. They are being used every day and thousands of times a day by every wide-awake, alive motor car dealer. These ideas are:

Sell
Sell for Cash

There is no need to look for the joker in that word "Sell"; it does not mean anything else and there are no strings on it.

They Sell Tractors

Hall Bros. & Reeves SELL tractors; and because they SELL them for cash they are successful.

Up to the time Hall Bros. & Reeves got into the tractor business, other tractor dealers and distributers had been content merely to "keep shop."

Tractors were bought from these dealers. The dealers did not sell tractors. The germ of merchandising had not yet entered the tractor field. **Hall Bros. & Reeves injected that germ.**

The first and most radical thing this radical firm did was to insist on doing a cash business. The firm had up to this time been selling motor cars. Which means they were doing a cash business with their dealers.

Said Guy Hall: "These motor car dealers of ours are rubbing elbows with the farmers; they are doing business with the farmer every day; the farmers are buying motor cars FOR CASH. There is no reason why they should not buy their farm tractors FOR CASH."

"You Must Pay Cash"

From that day forward Hall Bros. & Reeves have never given a dollar's worth of credit on a tractor sale. They say to the dealer: "We must pay cash to the manufacturer; you must pay cash to us." And there the situation rests.

Did the motor car dealers who have become tractor dealers for Hall Bros. & Reeves turn down the proposition?

They did not. They paid cash for their tractors—and they sold them for cash to the farmers. What did the dealers care for the fact that farmers always have bought every other conceivable piece of farm machinery on time, on open account, on notes? Not a thing. They simply sold tractors for cash.

These dealers knew very well that when the farmer wanted a shiny new motor car he went down into his jeans and brought out the money.

"Yes," said the tractor manufacturers, "but you can't make the farmer pay cash money for his tractor."

For answer there are the more than 500 Bull tractors that Hall Bros. & Reeves have sold in a year.

Started With One Tractor

This firm entered the tractor business in November, 1913. As a starter they bought one tractor — for cash. Then for several months they did little but plan and in June, 1914, the first gun in a selling campaign was fired.

A big ad in one of the daily papers brought 800 inquiries the second day. Advertising had to be stopped. Evidently the time to sell tractors for cash had arrived. **Hall Bros. & Reeves had guessed right.**

This ad was directed at the motor car dealer. Hall Bros. & Reeves wanted the motor car dealer because he had become accustomed to doing a cash business. **They did not want the implement dealer who, for the most part, had for years been accustomed to giving the farmer long time on his purchases.**

Just how well Hall Bros. & Reeves have succeeded in selling for cash when the manufacturers said it was impossible is made plain by the following.

When they entered this business there were extremely few engine plows suitable for use with the tractor they were selling. They proposed to a plow manu-

> THIS is the story of a progressive Western firm of hustlers—a firm that has graduated out of the ranks of motor car dealers into the ranks of the farm tractor distributer. This firm has proved that farm tractors can be merchandized—like anything else.

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facturer that he build them 50 plows of a special type, for cash, and to be sold for cash. The manufacturer said plows could not be sold for cash to farmers—never had been sold for cash and never would be; that Hall Bros. & Reeves were digging a grave for themselves, but that if they wished to climb into the grave the plow manufacturer would make up not less than 250 plows—for cash.

The order was given.

Last year Hall Bros. & Reeves sold over 700 engine plows for cash.

Since, the plow manufacturer has duplicated the Hall Bros. & Reeves order for himself—and sold these plows for cash.

Guy Hall is a great believer in plowing demonstrations. This is his method of getting in close touch with the farmers. An inquiry comes in from a section where there are not many small tractors.

A Believer in Demonstrations

Guy Hall sets the machinery in motion, gets the dealers to awaken the interest of ALL farmers in the section; puts a tractor on a train; arrives at the field where previously ALL the farmers have been assembled, and proceeds to supervise a 24-hour plowing demonstration. Perhaps he will plow 50 acres without a stop; or he may go to harrowing or disking for 8 or 10 hours. He never does things by halves.

Guy Hall keeps intimately in touch with the possibilities for sales through frequent correspondence with his dealers. He knows how many tractors a certain section can use. He instructs his dealers how to sell, and they sell—for cash.

No Deposit on Contract

Hall never requires a dealer to make a deposit on a contract; he figures that the amount of the deposit merely reduces the dealer's capital and the dealer needs the capital. Of course, when a tractor is ordered a deposit must accompany the order. But there is no deposit on the contract, as is usually the case with motor cars.

Every dealer must have a tractor on display or to demonstrate with. The size of the initial order for tractors is governed by the extent of the territory for which the dealer signs and may be one carload—which is five machines—or five or ten carloads, or it may be only one machine. But no matter how many machines are ordered, they must be paid for in cash. There is no deviating from this rule.

Encourages a Parts Stock

Hall encourages dealers to carry a stock of spare parts. He insists on this when the dealer is a considerable distance away from Kansas City. At headquarters parts to the value of about $20,000 are constantly in stock so that dealers can get quick service for their customers.

At first most of the prospects came from ads in the newspapers; latterly, however, few are received this way, most of them coming from the dealers. If a dealer wants help in closing a sale Nick Hall generally is that help.

Nick is a born salesman. Big, healthy, ruddy cheeked and always dressed in the height of fashion, he invariably closes for the dealer; and if he does not sell at least one more tractor before getting back to Kansas City he counts that day lost, but few are lost.

Now, Thieves, Watch Out!

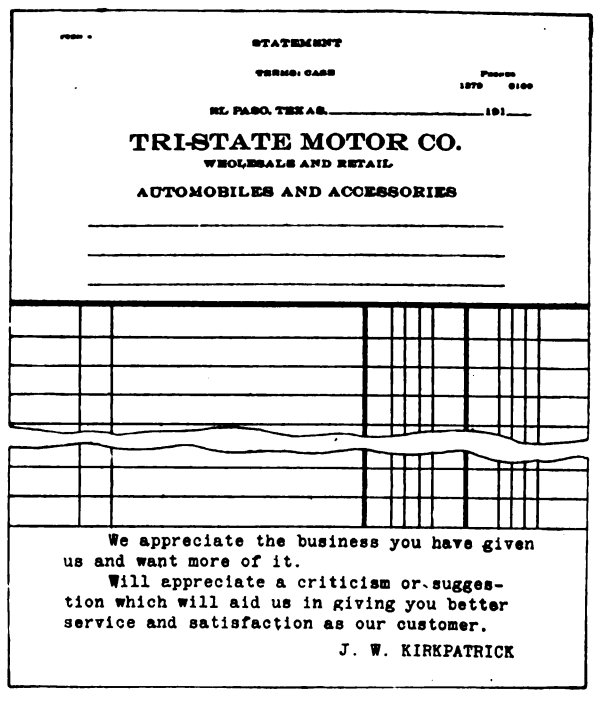
OMAHA, NEB., Feb. 26—The Northeast Nebraska Automobile Owners' Protective Association has been organized at Norfolk, Neb., as a protection against automobile thefts. Its territory embraces practically all the northern half of the State. Most of the members of the new organization are already members of the Northeast Nebraska Live Stock Protective Association, which during the past 10 years has made a record of running down every thief which it pursued. Local camps are being organized in all parts of the territory and arrangements are being made for simultaneous notification of members on the theft of any car, with systematic hunting for thieves to follow.

Jackson Has a Used Car Plan

JACKSON, MICH., Feb. 21—Jackson automobile dealers have arranged a new plan for the purchase and sale of used cars, and will here after have all used cars appraised and sold by the Used Car Sales Co. In the future, when a prospective purchaser of a new car wants to trade in an old one, it will be appraised by the Used Car Sales Co. and this appraisal will govern with all dealers. The car, if traded in, will be turned to the Used Car company for sale, the proceeds to go to the dealer taking the car in exchange. The appraisal will be made on a fair market estimate, the actual market value of the car with a small allowance for the expense of handling it being the basis on which it will be appraised.

Here's An Unusual Business Boosting Idea

Copy It



STATEMENT

TERMS: CASH

EL PASO, TEXAS, _____ 191__

TRI-STATE MOTOR CO.

WHOLESALE AND RETAIL

AUTOMOBILES AND ACCESSORIES

We appreciate the business you have given us and want more of it.

Will appreciate a criticism or suggestion which will aid us in giving you better service and satisfaction as our customer.

J. W. KIRKPATRICK

Editor Motor World:—We enclose herewith a statement which we use to considerable advantage by mailing one out to each of our customers, particularly to those whose purchases have decreased and apparently are not giving us all of their business or whose account we are apparently losing.

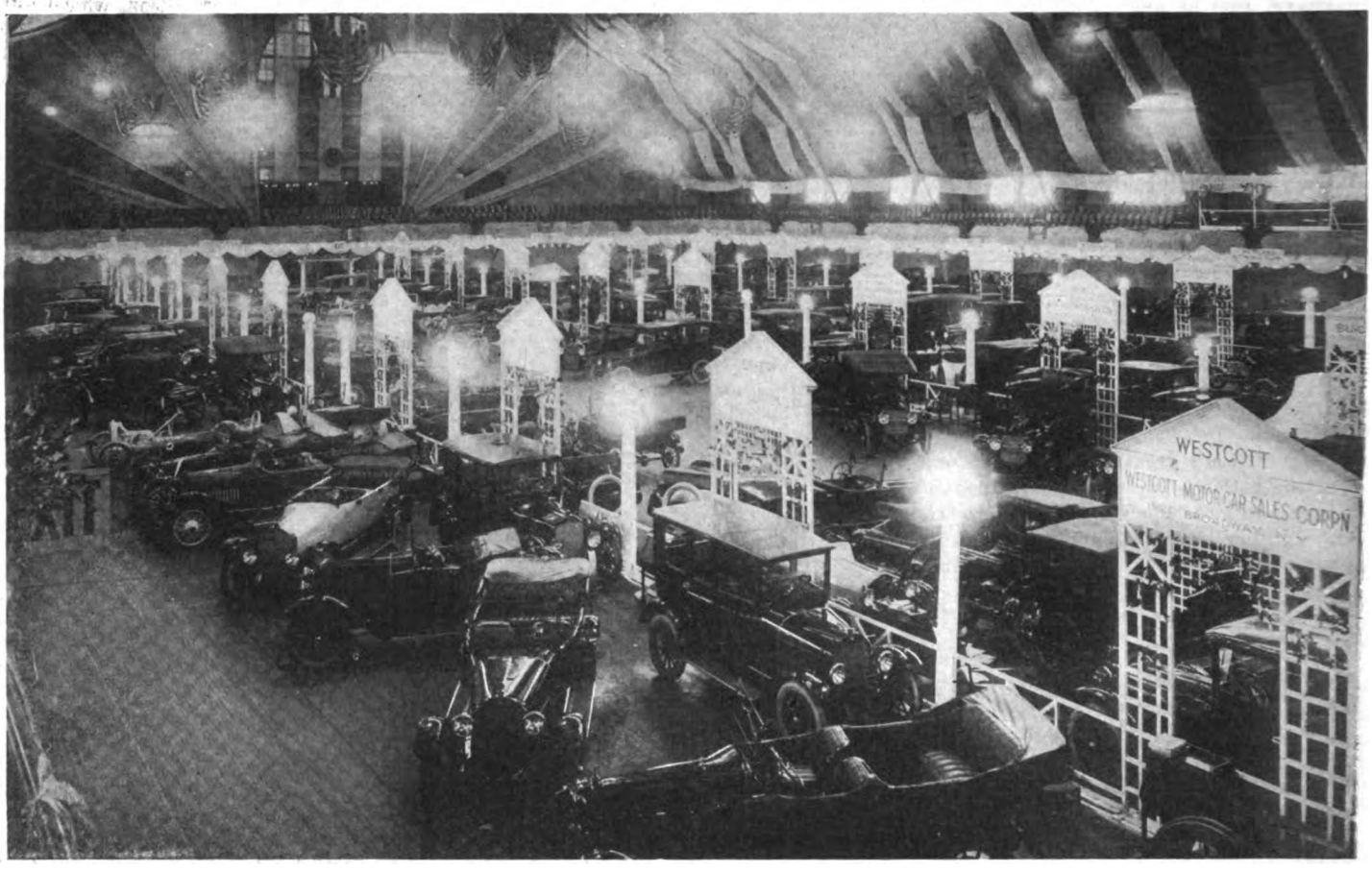
We date these, address them to the customer and mail them direct, not putting any amount on them.

This, of course, causes the customer, upon receiving a statement addressed to him and not showing any amount or anything, to read the expressions at the bottom.

We receive lots of good suggestions from these customers and have found it a profitable and unique way of getting expressions from our customers.

We send it to you, suggesting that other automobile and accessory dealers can use it to considerable advantage, as we did.—Tri-State Motor Co., Inc., J. W. Kirkpatrick, El Paso, Tex.

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A large airy building with plenty of room for everybody. The decorations are simple but effective and the signs are easily read

Brooklyn Breaks Record for Business

Plenty of Room Because Truck Show is Following Week—Show Marks Beginning of Spring Season

THE Brooklyn show is a fine show from every angle, and offers many features of interest to dealers everywhere. From a car-selling standpoint it beats all records; there are fewer sightseers and more prospective buyers. Particularly was this true on the opening Saturday night. Usually the crowd is a poor buying crowd, but this year the number of prospects was astonishingly large.

One of the brightest features of the present exhibit is that there is plenty of room for everybody; true, some of the exhibits are crowded, but this is not due to lack of space but because some dealers did not care to pay the price.

The new condition is brought about by the eleventh hour decision to hold a separate show for trucks the week following the pleasure car exhibit. Also additional space was gained by the elimination of accessory exhibits. There never was adequate space for a representative display of car parts and supplies, and consequently their disappearance causes no surprise nor regret. Formerly the accessories were placed at each side of the building.

The show is the sixth, and is being held in the Twenty-third Regiment Armory by the Brooklyn Motor Vehicle Dealers' Association.

The Brooklyn show is an open car show and a spring show. There are 119 open cars of various types, as compared with thirty-nine fully closed designs. In addition, there are sixteen convertibles and eight with detachable winter tops. Thirty-nine fully closed cars out of a total of 182. Naturally the lateness of the season and the proximity of spring and touring weather is the reason for the large proportion of the open cars. Also Brooklyn is a city in which most car buyers are men of moderate means and there is not the same demand for closed cars as there is in New York City proper, for example.

Bright colors are a noticeable feature of the show and tends to emphasize the spring atmosphere created by the predominance of open cars.

There are sixteen chassis, and there are a few special displays, but only a few. The Stearns dealer has a cutaway model of a single-cylinder Knight engine, which may be turned by a hand crank. It affords an excellent means of showing the sleeve valve principle at a glance. Hupmobile has a power plant enameled white and set off with a railing.

It is a splendid show building and the first view of the complete exhibition is more than impressive, and the simple decorations add to the effect. Picture

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a single room more than 100 ft. wide and 200 ft. long with a high arched roof supported entirely from the side walls. The roof work is partly but very effectively concealed by light and dark blue bunting and the steel arches have drapings of white bunting. Clusters of American flags alternate with immense chandeliers and additional lighting is provided all around the walls by two rows of tungsten lights.

The car spaces are divided parallel to the main aisles by a light fence work, and the corners of the spaces are attractively marked by columns on which are mounted electric globes.

The signs in the individual car spaces are placed much higher than usual this year, with the result that it is possible to locate a given car space from almost any point in the building. And in any location at all it is possible to read at least 50 per cent of the signs without difficulty. This is a departure which should be copied. In a great many shows it is often difficult to find a given car without going to considerable trouble.

Making the signs high, in itself, is not enough to make them easily readable from a distance. It is also necessary to eliminate any obstructions to the vision, consequently the decorations have been so chosen that there is nothing to interfere with the vision.

An improvement in the arrangement of the show spaces has been effected, and this is a subject which might come in for more attention all over the country; it is just as important as the arrangement of cars in the spaces or the decoration of individual spaces. Formerly there was a broad central aisle and two side aisles, the result being that people streamed in through the entrance, over-crowding the central aisle. After walking the length of this aisle they would in many cases visit only one of the side aisles, and would go out as soon as this circuit was completed. But with the new arrangement the passageways are more broken up and there is more chance of a man dividing his attention pretty evenly all over the show.

There are four main aisles now instead of three, thus the entering crowd must divide its attention between the two central aisles, and from them spreads out into the two side aisles. There is a cross aisle in the middle and at each end, so that the car exhibition spaces are divided into six blocks, and in addition there are the spaces around the walls of the building.

The admission price is 25 cents and tickets are sold to dealers for distribution among their prospects for 15 cents.

The absence of the electric was noticeable; there was only one car, an R&L, in the Baker-R&L space.

The Olds had the premier space, being located in the broad entrance hallway. Full advantage of the location was taken by placing a striking landaubrougham at the end facing the entrance. It is a handsome model with light buff body and black fenders.

Variety of Cheerful Colors on Brooklyn Show Cars

Lighter Colors Growing More Popular—One-third of Cars Are Gay

MORE brightly colored cars are seen at the Brooklyn show than is usual. Some of them are stock models and others are special paint jobs, ordered specially for the show. Out of 182 cars between fifty and sixty are in light hues. It is of interest to briefly review these different cars because they serve as a guide to show what representative dealers are offering for spring delivery.

There is a three-passenger Velie runabout with yellow body and black fenders and upholstery.

The bodies of the five and four-passenger Lexington models are green and blue respectively with white wire wheels.

The Murray is exhibited with three special bodies. A three-door berline is in gray with dark gray trimming, a striking seven-passenger has a dark blue body with mahogany cowl board and hood sills and yellow wheels; there is a very low brougham done in wine color and black, with the left auxiliary seat facing right, its back tight against the left door.

A seven-passenger green Owen Magnetic has black fenders and yellow wheels. The same make shows a dark blue landaulet brougham with attachable roof over the driver.

The seven-passenger Standard is attractive in beige, with black radiator and fenders and mahogany cowl. The upholstery is brown Spanish leather and the carpet is a pepper and salt design. Another open car has a blue body with yellow wheels, and a four-passenger is finished in beige with pigskin upholstery.

The Stephens five-passenger six is maroon with black fenders and runningboard aprons and yellow wheels.

A Paige runabout with concealed rear seat and disappearing rear windshield is yellow, with black fenders and dark blue wire wheels.

A newcomer in the passenger car field is a Vim taxicab with a spacious four-passenger body and ample room for driver and a trunk in front. It is built on the regular Vim delivery chassis. The interior is upholstered in brown leather and the body is blue with yellow wheels.

There is a striking Briscoe model with lavender body, black fenders, white wheels and white top.

A Maxwell touring car is gray, and a cabriolet has a blue body, with black running gear, these rather sombre colors contrasting strongly with the lamps and radiator, which are burnished brass.

A handsome Singer landaulet brougham is a burnt orange with wheels the same, with black fenders and upper work.

A seven-passenger Chalmers, with characteristic C. T. Silver hood and radiator and bullet headlamps, compels attention because it is colored a robin's egg blue and has nickeled windshield, radiator and lamps. An innovation is noted in the use of a permanent victoria top with large glass windows in the sides.

A Kissel all-weather model is light brown with green fenders and white wheels with the detachable top in black.

There are three attractive Premier cars. One is a light blue with fenders the same, and with cream yellow wheels. It is fitted with dust covers. A four-passenger is a beige with natural wood wheels and black fenders. Both these designs have a dull finish. There is also an all gray brougham in this exhibit.

A Saxon six touring car attracts attention in its coat of yellow, which contrasts effectively with black, which is used to outline the hood and the louvres.

A National touring car is a rather light blue with white louvres and wheels and black fenders and runningboard aprons. Another model is yellow with blue fenders and yellow wheels.

A Chevrolet eight has a gray body with black fenders and wheels, and another model has a green body with black fenders and wheels.

A five-passenger King has a maroon body with black fenders and white wheels. A King convertible sedan is blue with black fenders and wheels.

A Cole sedan is finished in gray all over.

A specially built Dodge town car has a dull blue body with black fenders and blue wheels.

A bright green body, with blue fenders and red wheels is seen on a seven-passenger Mitchell.

There is a Hupmobile touring car with detachable top which has a coffee-colored body with fenders and wheels to match. Another model is all white except the Victoria top which is black.

A Buick limousine has a maroon body with black fenders and maroon wheels, and a town car has a light brown body with black fenders and brown wheels.

A Cadillac touring car is a brownish beize with fenders the same and natural wood wheels, and a four-passenger is a solid green.

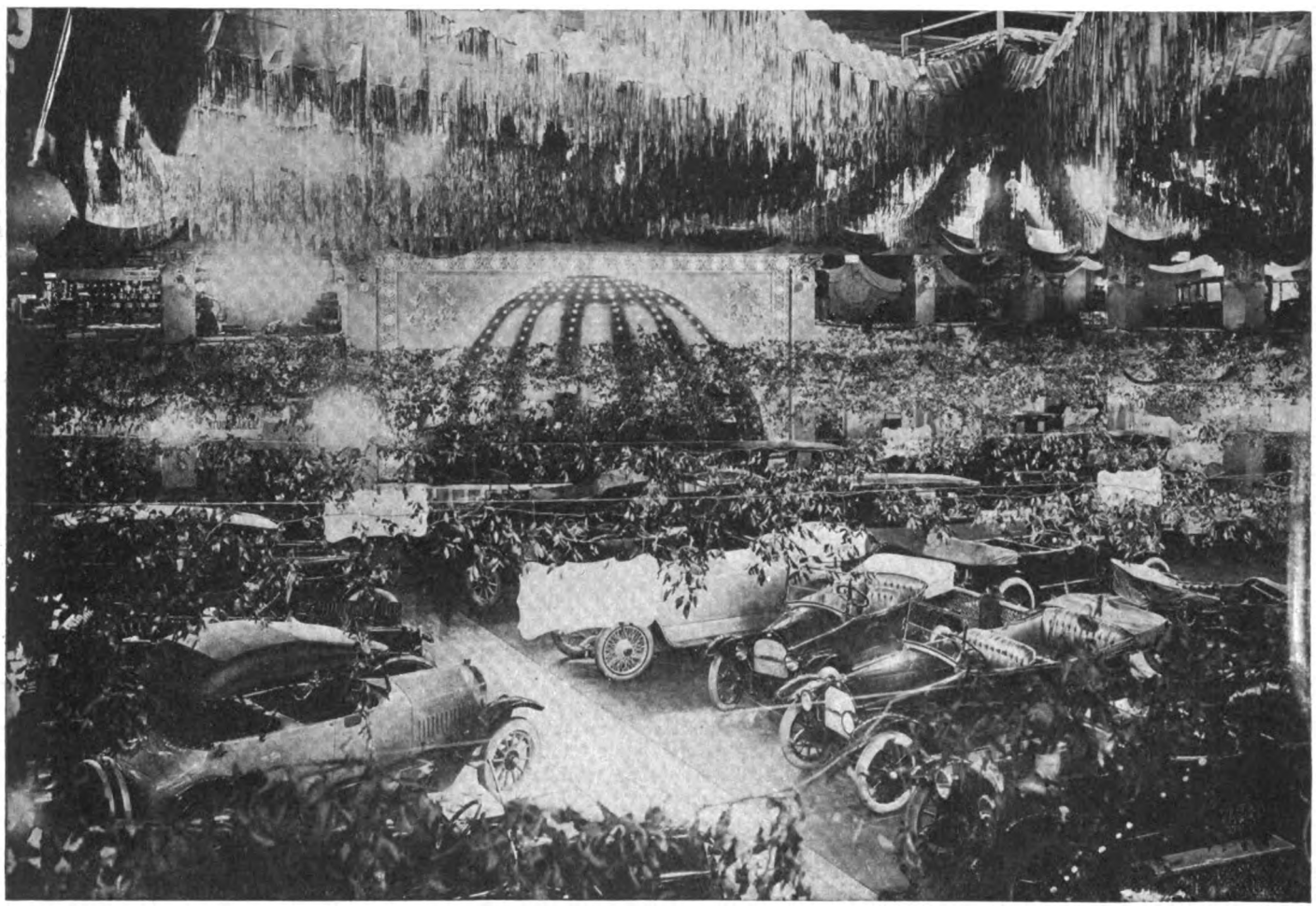
Dark red for the body and black fen-

(*Continued on page* 34)

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Good Newark Show in Cramped Quarters

Threatened Mobilization Prevented Use of Armory —Lack of Space Eliminates Trucks



View from balcony showing boughs of smilax; all the other decorations are permanent

DESPITE the handicap of having to postpone the show one week, and then hold it in a building one-third the size of the building selected, the Newark show was a big success. Many cars were sold and many live prospects were obtained and the expectation is strong that the coming year will greatly surpass the past one in number of sales.

All arrangements were made for having the show in the armory which is the place it has always been held in and is the logical place for it since it is by far the largest building suitable for show purposes in Newark. All the space in the armory had been allotted and most of the dealers were disappointed because they did not get as much as they wanted. Tickets were printed, publicity was sent out, and bill boards were used freely with the expectation that the show was to be in the armory during the week of Feb. 17 to 24.

Then the bombshell broke. Orders from the war department were received by the local officer in charge that the armory might be needed at a moment's notice for the mobilization of the National Guard, and he was forced to inform the show management that while they were at liberty to use the armory until this order came, if it did come it would mean that the armory would have to be cleared of everything in a couple of hours, and rather than take this risk the show was first postponed, and then when the situation did not clear the next best building was sought, and this was a large dance hall which is not much more than one-third the size of the armory.

Picture the consternation when this news was received. Even the armory was not large enough to give most of them the accommodations they desired and now their allotment was cut nearly two-thirds. It was a difficult situation but the dealers with one exception decided that it was up to them to make the best of it and they have.

There are no trucks in this show because of lack of space. As originally planned the truck contingent was to be well represented but in the smaller building it was found impossible to accommodate them at all.

In order to accommodate themselves to the cramped quarters the dealers are not displaying more than two cars on the average and there are several with only one.

Aside, however, from the reduction in space the new building offers many advantages. In the first place it is ideally located. It is within 5 min. walk of the center of the city and there are thirteen showrooms within short walking distance varying from just across the street to about five blocks, with the result that many of the dealers really had their main exhibitions in their showrooms and used the space at the show merely as a feeder. The Green Motor Co., Studebaker and Locomobile, to carry this idea still further, issued admission tickets to their showroom—not so much to make the prospects think that they were getting something for nothing but to impress upon them that the main show

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was in the showroom, which in this case was within twenty steps of the show entrance.

The Maxwell branch also took advantage of its proximity by having cars on exhibition in the showroom, and a model of the new one-ton truck. To accentuate the show atmosphere the room was tastefully decorated with flags and palms, and a canopy running from the entrance to the sidewalk helped center attention on what was inside. There was a distinct "party" atmosphere about the place.

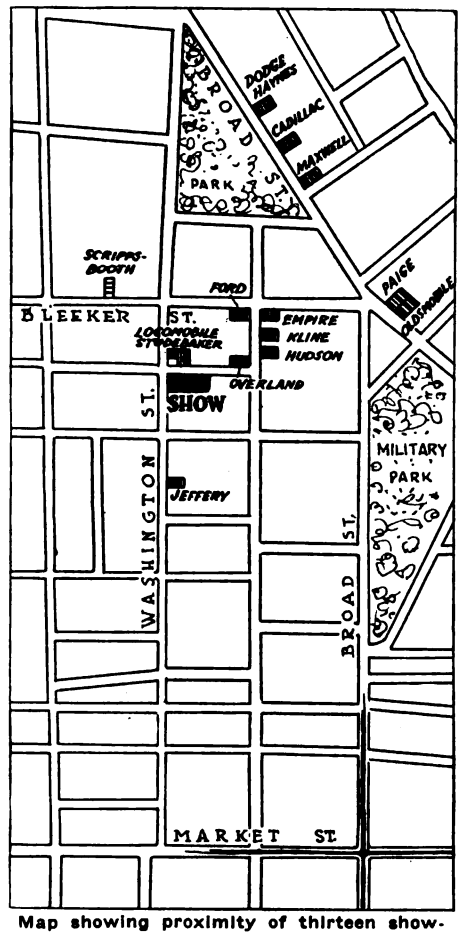
The Empire dealer celebrated the occasion by displaying several fine oil paintings along with his cars, the room being tastefully decorated with palms and flags.

American flags were used in great profusion in many cases. The Overland branch was a good example. Both the exterior and the interior was practically covered with them.

The Kline Kar dealer took advantage of the occasion to display many cups that the product has won in races and hill-climbs.

Unlike Brooklyn, the Newark Ford dealers, of which there are ten, combined under the leadership of the factory and were represented at the show. Each dealer was allowed to have one salesman in the space.

Another advantage of the building is that it is very attractively finished and little extra decoration was required. Being designed for dancing, the building did not have the barn-like appearance of most show buildings. The walls, ceiling and balcony are well finished so that it was hardly necessary to conceal them with bunting; there are strings of lights with vari-colored shades hanging from the ceiling, and the stage occupied by the orchestra is a quarter-sphere and is studded with red white and blue electric lights which simulate the national emblem.



Map showing proximity of thirteen showrooms to Newark's show

The central location of the building is appreciated both by business men and shoppers as the big stores and offices of Newark are all within walking distance, and many drop in during the daytime because of this fact, although the main crowd comes in the evening.

The price of admission is 50 cents and tickets were sold to dealers in blocks of 100 for $25. These tickets are serially numbered and are segregated after the show is over so that the number of tickets purchased by each dealer but not used by the people they were given to, may be ascertained, and the dealer is refunded 25 cents for each one of these tickets.

Since the show is staged by the Newark Automobile Dealers Assn. the money taken in by the show is refunded according to what each member pays. The rate for show space runs from 75 to 90 cents per square ft. and in former years it was usual for the dealers to be refunded as much as they put in. But it is doubtful this year because the overhead, under present conditions, is almost as high as formerly, including money lost in preparing for the show in the armory.

Newark Show Serves Northern New Jersey

Territory Has 3,000,000 Population—Newark Is Important Manufacturing Center—Products Diverse

Newark is the metropolis of the northern half of New Jersey. It is the center of a population of nearly 3,000,000 scattered over 3,000 square miles of territory roughly measuring 45x65 miles. It is a large manufacturing center and surrounding it is farm land which produces large returns from garden produce which is sold in all parts of the New York territory.

The section adjacent to Newark houses many thousands of moderately wealthy New York families, as there are many popular suburbs in this territory. A little farther out in the state is a section occupied by the extremely wealthy class. So Newark and its environs is a good territory for all classes of cars. The workers in the cities, the small business men and the farmers make the demand for low-priced cars brisk; the medium cars sell well in the suburbs and there is also a good market for high-priced cars.

Newark is growing rapidly and is close to the 400,000 mark, an increase of nearly 50 per cent in 10 years. It is now the fourteenth city in the United States. But the total population, including that of adjacent suburbs, which are not even set apart from it by intervening sparsely settled districts, is nearly 600,000, so that it ranks with Cleveland in size.

For years Newark has been looked upon as a suburb of New York, but the citizens have more recently begun to realize the possibilities of expansion; it has many advantages as a manufacturing center. Land is cheap, there are many railroad lines, and, best of all, it is a seaport, although few people are aware of this fact. Newark is booming, and on this boom the motor car business feeds and grows fat.

Newark is a great manufacturing center with more than $150,000,000 capital invested and between 60,000 and 70,000 workers, yet so varied are the articles produced that it is impossible to say that the city is noted for any particular product, which means that depression in one line will not affect the others—it means prosperity practically all the time because Newark's industrial eggs are not in one basket.

Gasoline Up 1 Cent

NEW YORK, March 1—Onward and upward marches the price of gasoline. Twenty-four cents per gallon is now the charge to New York and Brooklyn garages, or an increase of 1 cent over the February price. This is a higher charge than has ever before been known at this time of year, and it is the uniform price of the Standard Oil, Texas and Gulf companies.

New Jersey has so far escaped as big an increase. The Texas company is now asking 23 cents in that territory, but the Standard and Gulf are maintaining the price of 22 cents. Texas gasoline has advanced 1 cent to 25 cents in southern Connecticut cities. The Standard and Gulf prices in Connecticut are 24 cents.

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Men You Will Meet

AT THE BOSTON SHOW

THESE Men You Will Meet at the Show are in two lists—Cars and Accessories. Those before which is an asterisk (*) are delegated by their companies to give especial attention to dealers and to handle dealers' business. The name of the hotel at which the company will make its headquarters, aside from the exhibit at the show, follows the company's name.

CARS

Allen Motor Co.—*R. G. Ewell, Adv. Mgr., *V. L. Judd.

Atlantic Auto Co.—Copley-Plaza—*G. M. Leahony, *C. E. Jeffrey, Jr., F. H. Van Blarcon, G. W. Nixon, T. W. Ferguson, A. G. Howard, J. Winston, H. I. Bailey, E. Bartlett, B. S. Jeffrey.

Atterbury Motor Car Co.—Lenox—*W. A. Clare, Gen. Sales Mgr., *M. R. Korshin, Dist. Sales Mgr., J. R. Coleman, Chief Engineer, E. C. Neal, Treas.

Autocar Sales Service Co.—Somerset—*R. P. Page, Jr., Mgr., *C. L. Way, Supt., D. S. Ludlum, Pres., E. A. Fitts, Vice-Pres., H. M. Coale, Sales Mgr.

Briscoe Motor Corp.—Copley-Plaza—*R. L. DeLisser, *J. R. Findlater, *V. A. Charles.

Brockway Motor Truck Co.—Brunswick—*Walter M. Demman, N. E. Sales Mgr., *W. D. Morse, Gen. Sales Mgr.

Chalmers Motor Co. of N. E.—Copley-Plaza—*F. P. Allen, *W. S. Vley, *T. S. Sumner, C. E. Morse, W. J. Drumpelman, W. L. Agnew, H. P. Beale.

Chandler Motors of N. E.—Lenox—*R. E. Meacon, *R. B. Nettleton, *Howard L. Kelley, *F. C. Calderwood, *B. C. Hamilton, G. A. Crittenden, J. C. Mullen, C. H. Everett, J. A. Fall, Jr., W. C. Crane, L. F. Noyes, W. E. Leggett, Geo. Snow, H. H. Hevey.

Chase Motor Truck Co.—*B. E. Blackley, Gen. Sales Mgr.; *E. A. Daner, N. E. Div. Mgr.

Chevrolet Motor Co. of N. E.—Copley-Plaza—*D. C. Briggs, Mgr., *J. T. Collins, W. C. Durant, W. C. Sills, M. B. Leahy, A. B. C. Hardy.

Cole Motor Car Co.—Copley-Plaza—*W. L. Colt.

Commerce Motor Car Co.—Copley-Plaza—*Geo. D. Wilcox, Sales Mgr., *W. H. Brinkerhoff, Eastern Dist. Mgr., H. B. Bennett, Vice-Pres.

Connell & McKone Co.—Lenox—*J. H. McKone, Mr. French.

Davis Motor Car Co.—Copley-Plaza—*Frank Grow, B. P. Woodbury, Mgr., Geo. H. Brooks, N. S. Fisher, Walter C. Davis, Factory Rep.

Day Baker Motor Truck Co.—Copley-Plaza—*Day Baker, W. B. Hurlburt, R. W. Walker, Edward Wells.

Disbrow Motors Corp.—Copley-Plaza—*Louis Disbrow, Pres., R. H. Cornell, W. H. Byers, J. J. Curl.

Dort Motor Car Co.—Copley-Plaza—*Jno. D. Mansfield, *W. A. Chapman, A. G. Gale, Harry Eastman, F. A. Petrie, R. A. Shelley.

Duplex Truck Co. of Boston—Copley-Plaza or Parker House—*R. W. Linscott, *H. M. Lee, *C. H. Quereaux, C. O. Canniff.

Federal Motor Truck Co.—Westminster—*J. F. Bowman, *H. A. Conlon, *A. A. Geisel, M. L. Pulcher, Vice-Pres. and Gen. Mgr., L. B. Dudley, Adv. Mgr., E. A. Haskins, Service Mgr., R. L. Siebert, W. S. Hill, W. Ward Mohun, C. F. Case.

Fiat Motor Sales Co.—Copley-Plaza and Boston Athletic Assn.—*H. T. Clinton, *R. R. Ross, Geo. L. Kearns, C. P. Hulst, E. H. Parker.

Hinchcliffe Motor Co.—Copley-Plaza—*F. A. Hinchcliffe, E. S. Jordan, Pres. Jordan Motor Car Co., Carl H. Page, Pres. Carl H. Page Co. of New York.

Holland Trailercar Corp.—*J. P. Gage, Sales Mgr., *Russell E. Hunt, N. E. Agent, Charles S. Holland, Pres.

Hollier Motor Sales Co.—Copley-Plaza—*George G. Reed, Sales Mgr., F. H. Lewis, Pres. Lewis Spring & Axle Co., N. W. Tompson, Pres.

Events of the Week

March 6—Boice-Perrine—Copley Plaza—Banquet, U. S. L. Service Stations.

March 6—Oakland Motor Co.—Lenox.

March 7—Linscott Motor Co.—City Club, noon.

March 7—Davis Motor Car Co.—Company's offices, 2:30 p.m.

March 8—Atlantic Auto Co.—Copley Plaza—Luncheon.

March 8—Boice-Perrine Co.—Copley Plaza—Banquet, Rayfield Service Stations.

March 8—Maxwell Motor Sales Corp.—Copley Plaza—Luncheon 1 p.m.

March 9—Federal Motor Truck Co.—Lenox—Dinner.

Chandler Motors Co.—Dealers' Meetings every morning.

Oldsmobile Co.—Meeting and Banquet.

Selden Truck Sales Co.—Two N. E. Dealers' Meetings at Copley Plaza.

White Co.—Annual Banquet at Lenox.

Hurlburt Motor Truck Co.—Copley-Plaza or Touraine—*Edward Wells, *R. W. Walker, *Day Baker, W. B. Hurlburt.

Jackson Motor Car Co.—Lenox—*A. H. Sowers, Treas. and Gen. Mgr., C. R. Hathaway, Assistant Mgr., R. A. McKee, Retail Sales Mgr., G. L. Lighthall, Wholesale Representative, G. F. Wright, Wholesale Representative, A. M. Robinson, Branch Mgr. of Worcester, E. D. Hartwell, Branch Mgr. of Brockton, F. W. Cousins, R. G. Irwin, F. Neilson, F. Clapp, H. B. Pulsifer, W. R. Edson.

Jordan Motor Car Co.—Copley-Plaza—*W. B. Riley.

King Motors, Inc.—Copley-Plaza—*F. I. Rennert, Boston Mgr., *Geo. H. Lawrence, Sales Mgr., *F. W. Green, Retail Sales Mgr., Artemas Ward, Jr., Factory Pres., R. P. Bishop, Sales Mgr., T. E. A. Barthel, Vice-Pres. of Factory, G. H. Bates, Commercial Mgr., I. D. Rocap.

Lexington-Howard Co.—Lenox—*R. J. Irvin, Sales Mgr.

Liberty Motor Car Co.—Copley-Plaza—*E. J. Kilborn, Sales Mgr., Percy Owen, Pres. and Gen. Mgr.

Linscott Motor Co.—Copley-Plaza—*J. C. Brandimore, *John Hart Taylor, George A. Patten, J. M. Linscott, W. C. Parker, R. C. Rueschaw.

MacAlman, J. H.—Lenox—*Geo. J. Dunham, Guy Vaughan, Robt. P. Holmes, E. G. Fitzhenry, J. H. O. Ingalls.

Maxfer Truck & Tractor Co.—Copley-Plaza—*W. A. Baxter, C. S. Brownlee, J. L. Turriff.

Maxwell Motor Sales Corp.—Copley-Plaza—*T. J. Toner, *Chas. Gould, *P. D. Burress, *C. E. Stebbins, Walter E. Flanders, Hoover Holton, Geo. T. King.

Moline-Knight Sales Co.—Copley-Plaza—*M. P. Hubbell, E. H. Kimball, G. S. Parker.

Nash Motors Co.—Copley-Plaza—*C. B. Voorhis, Gen. Sales Mgr., *H. C. Hart, Sales Mgr. Truck Div.

Oakland Motor Co. of N. E.—Lenox—*L. B. Saunders, Gen. Mgr., C. R. Dunbar, Treas., Wm. H. Masten, Gen. Sales Mgr., Oakland Motor Car Co., Pontiac, Mich.

National Motor Car & Vehicle Corp.—Copley-Plaza—*J. M. Clarke, Sales Mgr., W. H. Stevens, N. E. Rep.

Oldsmobile Co. of N. E.—Copley-Plaza—Messrs. *MacGregor, *Lowd, *Ayres, *Cannell, E. VerLinden, P. L Emerson.

Paige-Detroit Co. of N. E.—Lenox—*Walter B. Hennigan, Sales Mgr.; *R. E. Libbt, Wholesale Mgr.; F. E. Skeetop, Harvey Stewart and Mr. McCormick.

Pathfinder Co.—Lenox—*W. E. Stalnaker, Vice-pres. & Sales Mgr.; *St. Clair Couzens, Asst. Sales Mgr.; *C. C. Woods.

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Peerless Motor Car Co.—*John L. Snow, Pres. Beacon Motor Car Co. of N. E., W. T. Frazer, Home Office Sales Dept.

Reily Motor Sales Co.—*Chas. J. Reily, A. W. Brown, K. E. Ahern.

Scripps-Booth Motor Car Co.—Copley-Plaza—*A. Vere Shaw, *Robt. H. LaPorte, L. M. Severance, C. L. Donald, A. R. Goodman.

Saxon Motor Car Corp.—Copley-Plaza—*R. C. Getsinger, Sales Mgr., *A. H. McIntyre, R. N. Harger, Adv. Mgr.

Selden Truck Sales Co.—Copley-Plaza—*H. T. Boulden, Sales Director, *Jas. E. Morse, N. E. Sales Mgr., Geo. C. Gorden, Pres., R. H. Salmons, Sec.

Signal Motor Truck Co. of N. E.—Copley-Plaza—*Fred C. Henderson, *James W. Ratcliffe, *John B. Tuttle, Charles C. Ball, Geo. Hall, Geo. S. Baker, Curtis Merril, Nils Bogren, John Squires.

Stanley Motor Carriage Co.—Messrs. *Warren, *Hallett, Wallace, Myers, Tyler.

United States Motor Truck Co.—Touraine—*F. J. Alvin.

White Co.—Copley-Plaza and Lenox—*C. A. Gilmore, Walter C. White, Vice-Pres., James A. Harris, Adv. Mgr., Millard H. Newton, Asst. Adv. Mgr., F. H. Squires, Mgr. Good Roads Machinery Dept.

Wing, Frank E.—Copley-Plaza—*F. E. Tucker, E. F. Miller, C. H. Hornsey, F. E. Warren, A. F. Neale.

ACCESSORIES

Ajax Rubber Co., Inc.—Copley-Plaza—*Harold W. S. Stimpson, Treas.

Allen Engineering Co.—*Ernest B. Allen.

Amazon Rubber Co.—*Owen Moynihan, Eastern District Mgr.

American Bureau of Engineering—*H. Lancaster, *C. J. Buckwalter.

American Storage Battery Co.—Messrs. *Wilkins, Taylor, Harrington, Monahan.

Auburn Ignition Mfg. Co.—*John V. Wilson, Geo. F. Blake, S. M. Kitchin, Gen. Mgr., H. G. Kitchin, Sales Mgr.

Autoparts Co.—Booth.

Automobile Snow Attachment Co.—Castle Square—*Virgil D. White.

Autopep Products Co.—*James L. Holland.

H. H. Babcock Co.—Lenox—*B. F. Lownsbery, Salesman.

Burd Ring Sales Co.—899 Boylston Street—*M. T. Rogers, Pres., *H. H. Cole, N. E. Mgr., L. E. Moore, E. C. Adams.

Batavia Rubber Co.—Copley-Plaza—*W. P. Berrien, Sales Mgr.

Brewster & Co.—Copley-Plaza—*Allan Buchanan.

Burrill Tire Tool Co.—*F. H. Burrill, Pres., *Charles Noll, Treas. & Gen. Mgr., *G. H. Brown.

Boice-Perrine Co.—Copley-Plaza—*Lester Perrine, *John A. Sturtevant, *Waldemar E. Crosscup, Carl P. Grimes, Russell White, J. G. Miller, John Walsh.

Bound Brook Oil-less Bearing Co.—Touraine—George O. Smalley, Vice-Pres. & Gen. Mgr., Wm. F. Jennings, Eastern Sales Mgr.

Champion Ignition Co.—Lenox—*A. Champion.

Champion Spark Plug Co.—Copley-Plaza—*Geo. B. Nason, *E. M. Stern, B. A. Shanahan, Pres., F. B. Caswell, Sales Mgr., R. L. Carey, Adv. Dept.

Columbus Varnish Co.—Haymarket—*H. H. Roberts, N. E. Rep.

Connecticut Telephone & Electric Co., Inc.—Copley-Plaza—*C. E. Stahl, Sales Mgr.

Craig-Wyman Co.—93 Massachusetts Avenue—*R. F. Craig, Arnold M. Wyman.

Cutler, Morse & Co., Alfred—Thorndike—*Mr. Morse.

De Lano & Harriman—*C. B. De Lano, *J. P. Harriman.

Detachable Limousine Co., Inc.—Parker House—*Emmet O'Brien, Secty-Treas., J. W. Stenson, R. D. Golder.

Eastern Oil Tank Co.—*Charles E. Gee.

Empire Axle Co.—Copley-Plaza—*R. W. Foley, Sales Mgr., Wm. C. Blackham, Secty & Treas., E. de H. Caldwell, Vice-Pres. & Chief Engineer.

Fernald Shock Absorbing Spring Suspension Co.—*C. F. Fernald, *John E. Hutton.

Fuller Brush Co., Inc.—*M. E. Northrop, Dist. Mgr., *E. Hodge, Mgr. of local exhibit, A. C. Fuller, S. L. Metcalf, Sales Mgr.

General Engineering Co.—City Club—*Abner Doble, *T. P. Myers, *R. S. Lattin, *Kenneth L. Moore, *A. F. C. Beckford.

Emil Grossman Mfg. Corp.—Copley-Plaza—*W. M. Farans.

Hartford, Inc., Edward V.—*D. E. Harvey.

Hawthorne Mfg. Co.—Copley-Plaza—*C. Howard MacKay, E. A. Hawthorne, E. Horace Hawthorne, W. A. Prince.

H. & H. Motor Specialties, Inc.—Lenox—*S. F. Hall, *J. L. Hamilton, B. Darrach, Jr.

H. L. Hurst Mfg. Co.—22 Brattle Square—*Henry B. Black, L. Latham.

Isair Co.—*C. G. Polleys, *E. N. Hunt, *G. C. Caulfield.

Johnson Co.—Copley-Plaza—*H. W. Potter, Pres.

Lang Engineering Co., J. S.—*Henry J. Perry.

Lee Tire Sales Co.—*H. B. Waddell, *Geo. P. Hewett, *Geo. W. MacBride, H. Myers.

M. B. Tool Co.—*J. J. Banigan, L. S. Massutte, B. H. Banigan.

Miller Carburetor Sales Co.—Technology Chambers—*Joseph M. Carling, Treas., E. F. Smith, Pres.

McQuay-Norris Mfg. Co.—Lenox—*H. P. Marsh, N. Y. Branch Mgr., M. Jones.

Mead Morrison Mfg. Co.—*G. E. Robinson.

Michelin Tire Co.—*W. L. Hogarty, *M. M. Marple, *W. P. Sanders, *F. W. Doherty, *L. M. Weener, *J. R. Philbrook, *H. E. West.

Mosier & Co., A. R.—Touraine—*Motor Parts Co. of Boston, *J. W. Fischer, Sales Mgr.

National Rubber Co.—Oxford—*F. W. Dogherty, Mgr. Boston Branch, R. O. Sperry, Sales Mgr.

New Era Spring & Specialty Co.—Thorndyke—*Smalley Daniels.

New York Lubricating Oil Co.—Lenox—*C. G. Stowe, *W. W. Haskell, *John F. Tibbetts, W. B. Sheddan, Treas.

Nutter Electric Equipment Co.—*S. Duncan Black, *Emanuel Gorfinkle.

Prest-O-Lite Co., Inc.—*A. N. Dodge, Div. Mgr., *A. L. Combs, *C. A. Bolton, Branch Mgr.

Russel Motor Axle Co.—Copley-Plaza—*Geo. B. Russel, Sec. & Treas.

Optimus Manufacturing Co.—*J. Stewart Hollyday, *Frank Reinhard, Walter G. Costello.

Rubber Insulated Metals Corp.—Copley-Plaza—*John S. McClurg, Sales Mgr.

Sexton Oil Co.—Copley-Plaza—*C. Howard Williams, F. G. Moore.

Shauck & MacMurray Co.—Copley-Plaza—*J. G. MacMurray, *R. W. Shauck, H. R. MacLellan.

Silvex Co.—Copley Square & Back Bay—*G. W. Dennis, *Chas. T. Lawton, Wm. N. Davidson, Vice-Pres. & Gen. Sales Mgr.

Tiffany Co., D. C.—Lenox—Messrs. *Kellam, Sales Mgr., Ohio Electric-Car Co., *Doak, Asst. Sales Mgr.

Thompson Co., E. L.—Lenox—*E. L. Thompson, *Sidney Levy.

Universal Clamp Mfg. Co.—Essex—*A. P. Swaidmark.

Weaver Mfg. Co.—Brewster—*Ralph Waldt, Mgr. N. Y. office, C. F. Hodgson, Sec.

White & Bagley Co.—Copley-Plaza—*H. P. Bagley, P. W. Covey, *J. T. Levy, *T. H. Day.

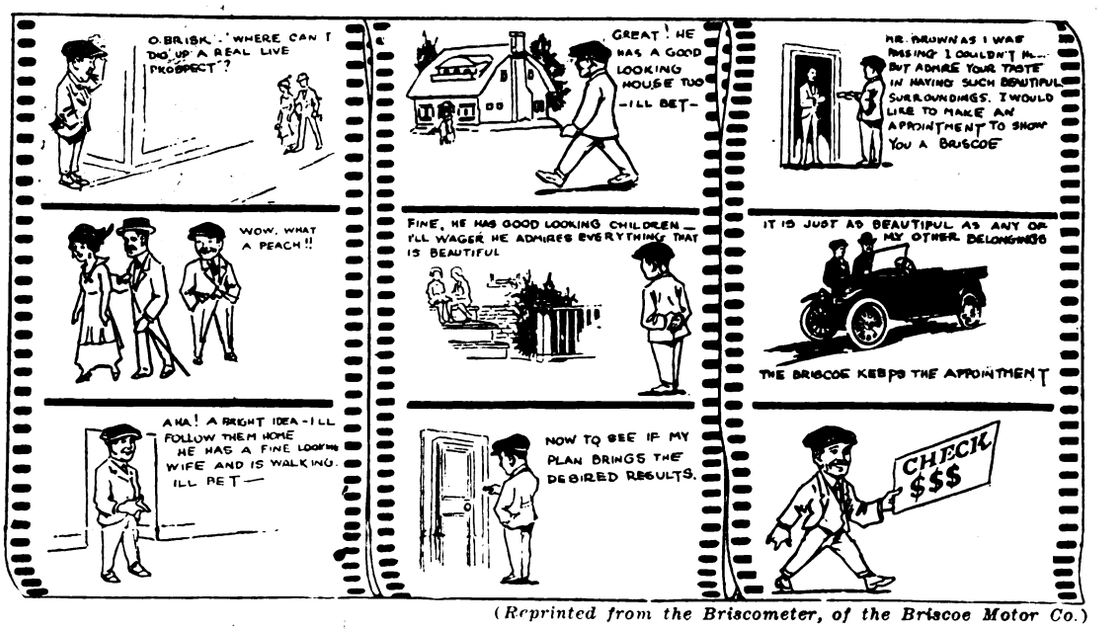
Wilson Co., John V.—New Colonial—*J. V. Wilson, *F. S. Evans, A. L. Perault, Frederick Lahey.

Wood-Detroit Mfg. Co.—*Vernon C. Wood, W. A. Wood.

Wright "Name On" Robe Co.—*John M. Wright.

A "Reel" of Real Doings

Mr. O'Brisk the Briscoe Dealer Useth His Brains with Excellent Results



(Reprinted from the Briscometer, of the Briscoe Motor Co.)

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Emerson Building Five Cars Daily

Deliveries Being Made—Roomy Factory and Quantities of Stock on Hand—Plans to Build Its Engines.



Freight siding and a portion of the factory

KINGSTON, N. Y., March 1—To-day we visited the factory of the Emerson Motor Co., here for the purpose of finding out first hand exactly what this company is doing in the production of motor cars. We brought our own photographer and took the photographs which are reproduced herewith. Nobody connected with the Emerson organization had any intimation of our visit until we arrived. The photographs taken were all made according to our directions. There was not a single chassis or part moved into any position in order to make a good photograph. Everything was photographed exactly as it was. There was no cleaning up of the floor, no rearranging of parts, no grouping of chassis on the assembly floor, no posing of workmen, everything was taken exactly as we found it. We wanted it so in order that our readers might get a true picture of what is being done. Our artists have not done any retouching on a single photograph.

We found the Emerson company assembling cars and shipping them on a schedule of approximately five a day. Sixteen complete Emerson cars were loaded on the freight cars to-day; yesterday nine were shipped, on Tuesday seven were shipped, and on Monday seven were shipped. We were advised that 106 had been shipped to date.

30 Cars Being Assembled

Through the factory we were most concerned at seeing how production was moving along through the different departments. We found thirty chassis in different stages of construction, as follows: At the start of assembly were eight frames being fitted with axles, springs, etc.; on the progressive assembly floor with its two tracks for assembly were nine chassis in various stages of completion; in the chassis paint department were nine chassis being painted and fitted with tires, and four other chassis were completed, waiting to have bodies fitted on them.

We looked for bodies and found nineteen cars fitted with bodies and practically complete ready for shipment. There were four bodies mounted on wheeled trucks ready to be mounted on chassis; eight others were waiting to be taken out of the final varnish room, and thirteen others were waiting to be put into the varnish department.

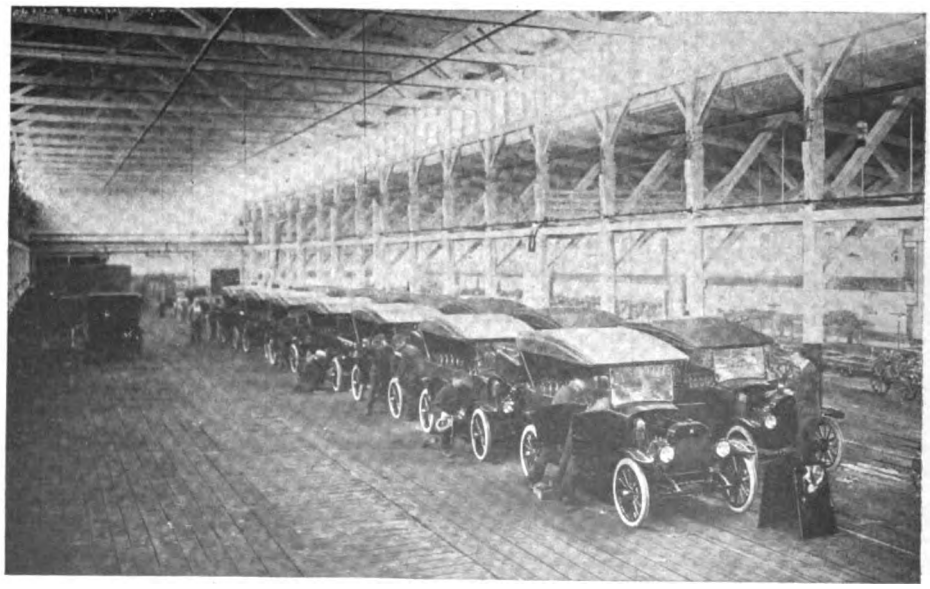
Looking around for other indications of stock to go into the chassis we found the following: Rear axles, 230; front axles approximately, 150; frames, 44; springs, 600; mufflers, 20; radiators, 26; propeller shafts, 40; starting and lighting equipment, 20. In addition, there were small groups of other components in different places, in the raw stock room. finished stock room and in different parts of the assembly floor. There were eleven motors on the assembly floor, which had just been received and were being uncrated. We were advised that motors were arriving at the rate of six a day, which is only at half the rate the company needs them.

Throughout the factory we found activity in practically all deparmtents along the percentage that you would expect in a factory producing and shipping five cars a day on an average. Thirteen workmen were engaged on chassis assembly; twenty were working on finishing up cars for shipment; four were in the chassis paint department; three were working in the paint and varnish; there were five in the sheet metal department; eight were in the machine shop, and we did not have an opportunity of counting the numbers engaged in unloading, working in the raw stock department, in the finished stock department and in the primary chassis assembly. There were others engaged in loading cars, several in the engineering department and in the other miscellaneous departments.

Factory Dimensions

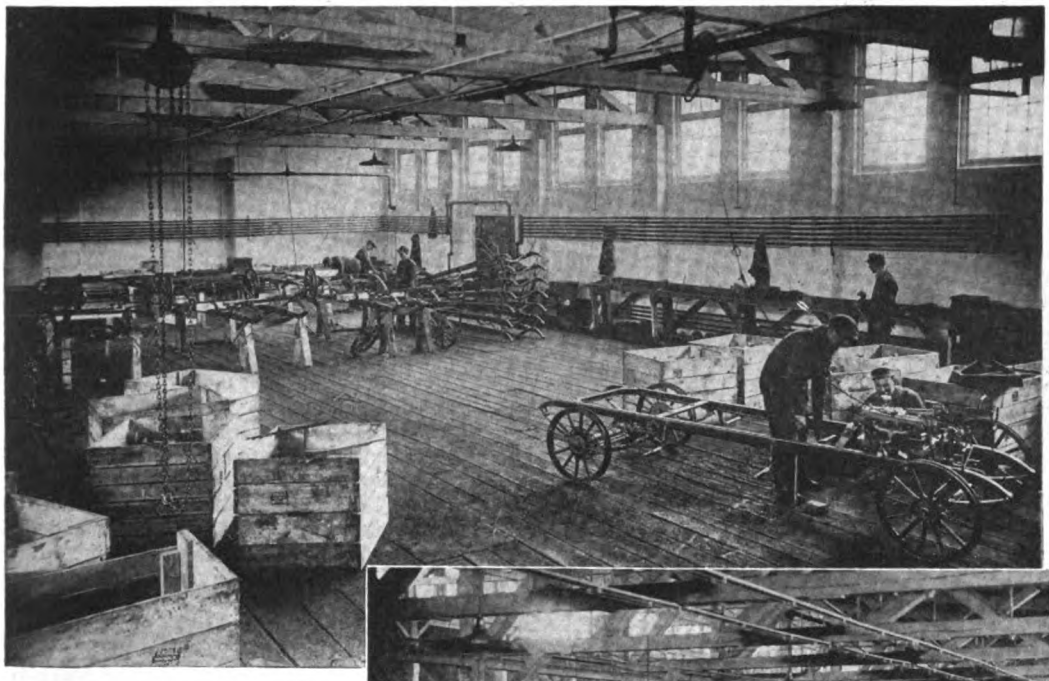
The factory is roughly T-shaped, with the vertical part 317 x 152 ft. and the cross part 280 x 70 ft. The cross part is the machine shop, which is modern in every respect. It has been fitted with a cement floor and a new addition measuring 90 x 70 ft. added by the Emerson company. Machinery worth $28,000 has been bought and paid for, and $32,000 worth of additional machinery ordered, which will be installed in 60 days.

The company contemplates manufacturing a great many of its own motors and has in process of manufacture $35,000 worth of tools and jigs for motor manufacture. Already $12,500 has been paid on this item. The company has at present arranged for the manufacture

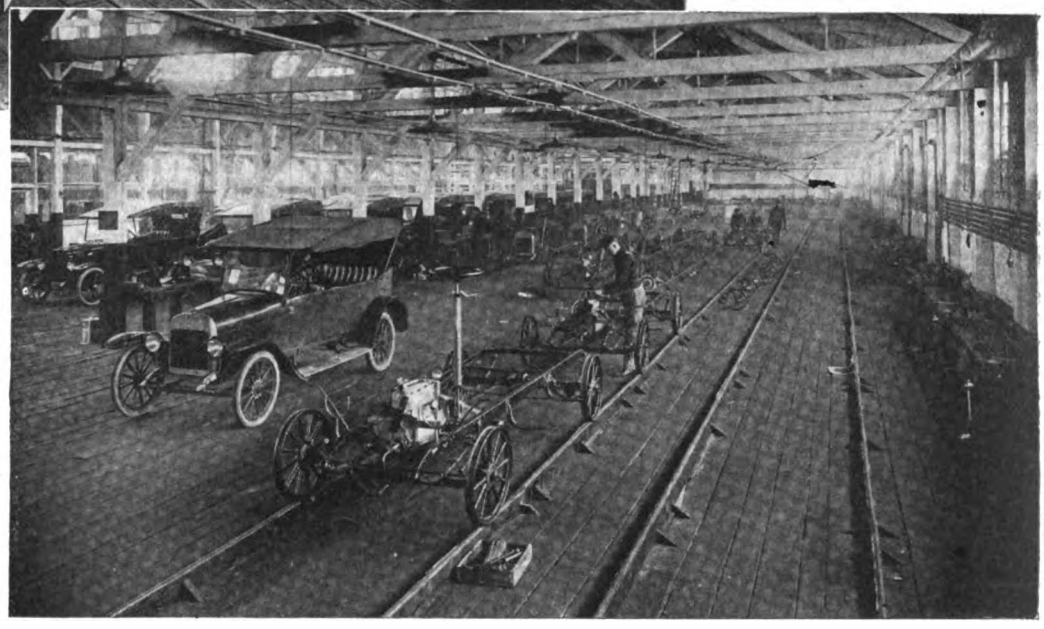


View in Emerson factory March 1 showing sixteen cars being completed for shipment. These cars were not lined up for this photograph, but were going through the normal course of production. They are being fitted with floor boards, speedometers and other detail equipment. To the right is the long assembly floor 180 ft. in length

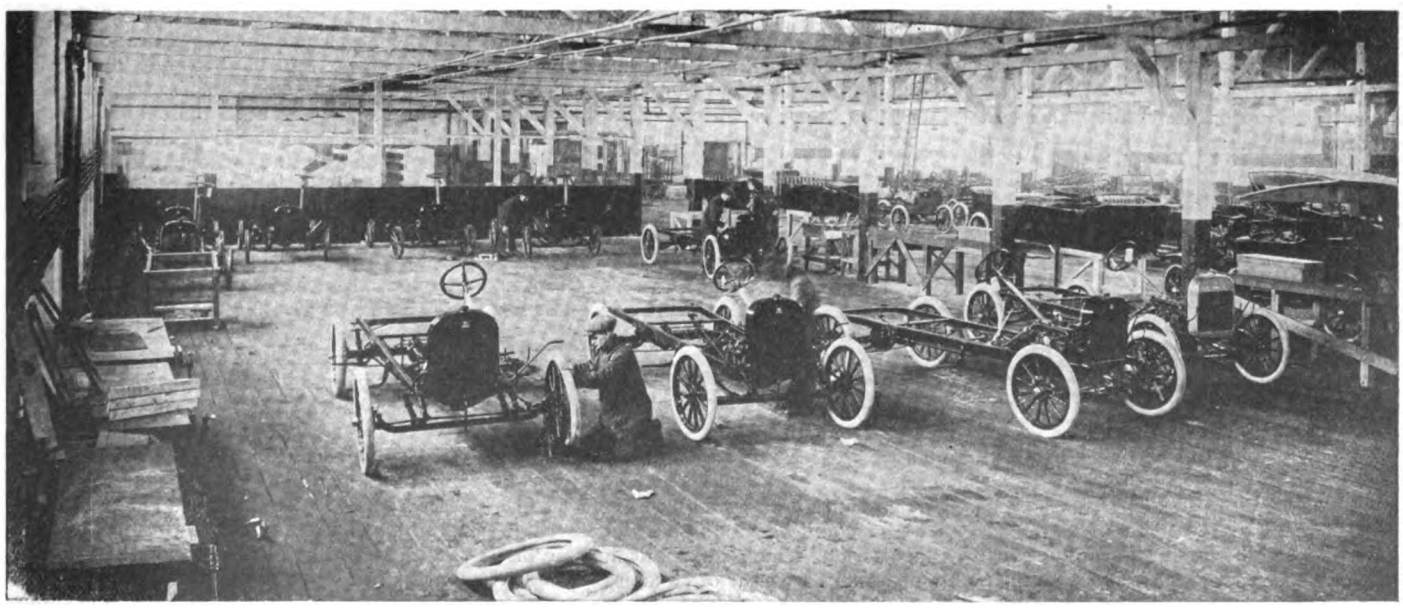
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Rear end of Emerson assembly floor photographed March 1. This shows seven chassis in the early stages of assembly. This space is at the end of the progressive assembly floor. Here the frames are started and the addition of springs and axles made. In the foreground the motor has been dropped into position. This done the car is moved onto the progressive assembly floor

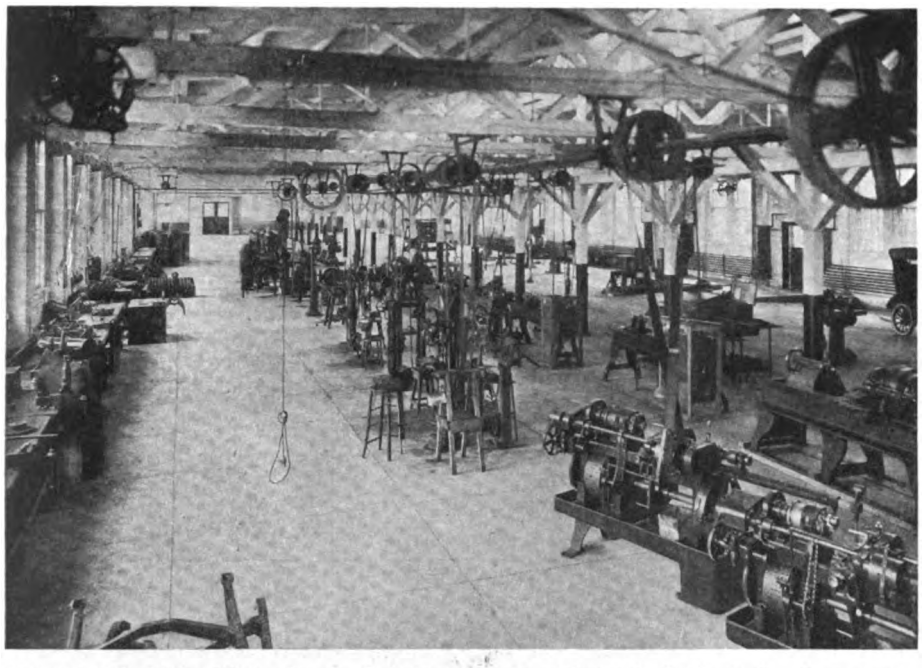


General view of assembly floor in Emerson factory March 1 showing nine cars moving along in process of assembly. These cars were not arranged in this order for photographing purposes but just as they were caught without the factory knowing of our visiting the plant. There are two assembly tracks each 180 ft. in length and there is room for two additional tracks to the left of these. Along the right are work benches the entire 180 ft. These were generally stocked with chassis parts, such as starting and lighting apparatus, propeller shafts, mufflers, and other small parts



Chassis painting department in Emerson factory March 1. This shows nine chassis completed, being painted and fitted with tires, preparatory to being moved into the department where the body is added

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General view of machine shop in Emerson factory photographed March 1. It measures 280 by 70 ft. and has been concreted in the last few months. Part of this shop, a section 94 by 70 ft., was built last fall at a cost of $9,000. Approximately $18,000 has been expended to date in this shop. All of the machining on parts needed in the assembly of Emerson cars is done here. The shop has capacity to take up the manufacture of motors which is expected to start about July 1

of 1500 motors. It expects to begin the manufacture of its own motors in July.

At present the machine shop is used for machining all parts going into the assembly of the car. Wheel hubs were being machined in quantities.

The vertical part of the T in the factory layout is used for general assembly work. It roughly divides itself into three parallel parts from end to end. At the right is the chassis assembly with room for four parallel assembly tracks. In the center the bodies are fitted and the final assembly of all car parts accomplished. Along the left is a chain of four departments, sheet metal works, final paint and varnish, chassis painting and fitting and finished stock.

The sheet metal department, 72 x 40 ft., is at present fitted with a new fender rolling machine, cutting machine, beading machine, etc. At present the hoods are being manufactured here and some of the fenders. It is planned to manufacture many of the body parts also.

Real estate and buildings cost $136,000, all of which has been paid for excepting a mortgage of $33,000, which will be paid off at $5,000 per year. The property is free of taxes for 5 years. Approximately $150,000 has been invested in materials which have been in the process of manufacture for car components. Machinery equipment has taken $28,000 and $32,000 more is going into it. For tools and jigs for motor manufacture $35,000 is being expended, of which $12,500 has already been paid out. Financial statements show $160,000 cash in the bank. The company has several dealers who have made heavy stock purchases, and some of these have made cash payments of considerable quantities.

The company has contracted for 10,000 sets of parts for car manufacture, and of these deliveries have been specified on 5000.

At present the company reports having between forty and fifty dealers who are contracting for cars and placing deposits in the regular selling way. The company estimates that it expects to manufacture 150 cars in March and to exceed 300 in April.

Variety of Colors in Show Cars

(*Continued from page 27.*)

ders with green wheels is the color scheme on a Stearns touring car. The upholstery is black.

A handsome Daniels berline is brown with black fenders and wheels; a four-passenger runabout with sloping rear deck is entirely in white and another model is dark red.

There is a Hudson landaulet brougham in a brownish beize with black fenders and wheels.

A Reo town car has a maroon body with black hood and fenders and red wheels.

Peerless is showing a high-speed turtle-deck roadster with a bright green body which has a suggestion of yellow in it and the wheels are yellow with a touch of green. The upholstery is black. The color scheme is that used on the famous Peerless Green Dragon.

Wintons are seen in a delicate light gray and in a cream brown—the former is a limousine and the latter a touring car.

A Willys-Knight landaulet is blue with black fenders and red wheels, and a Willys six seven-passenger is dull gray with gray wheels.

Brooklyn Territory Fertile

Great Manufacturing Center—Suburb of New York—Long Island Population 2,500,000

THE district served by the Brooklyn show is a rich one. It includes not only Brooklyn with its population of over 2,000,000, but all of the four counties comprising Long Island. In fact, Long Island is about as populous and nearly as big a consumer of automobiles as Manhattan itself, which has a population of 2,700,000 as against an approximate 2,500,000 for all of Long Island.

While the Brooklyn show is distinctly a local show, it must not be forgotten that this city is still part of Greater New York. When New York is prosperous, Brooklyn is prosperous, and New York has been prosperous. Brooklyn is a near-at-hand residential suburb for a vast army of New York's workers who are carried back and forth over four bridges, three tubes and innumerable ferries.

Also contributing to Brooklyn's wealth are the countless industries, centered in this section, which do about half a billion dollars worth of business yearly. About one-half of the sugar used in the United States is refined in Brooklyn. It is also an important center for the milling of coffee and spices; in 1905 the product was valued at $15,000,000 and has increased enormously since then but more recent figures are not available. The building of small boats, foundry and machine shop products, malt liquors, barrels, shoes, chemicals, paints, cordage, twine, hosiery and other knitted goods are produced in large quantities.

Of its large commerce, grain is the chief commodity, four-fifths of that leaving the port of New York passing through this territory. The total capacity of its grain elevators is 20,000,000 bushels.

Large sections of Long Island are occupied by summer homes of the extremely wealthy so that this territory is a rich one for the sale of expensive as well as moderate and low-priced machines.

In addition, the many summer resorts accommodate thousands and thousands of the moderately wealthy so that those centers all over the island do a brisk business in motor cars during the summer months.

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The twenty-seventh in a series showing

Dealers Who Have Made Good

RUSSELL P. TABER was called a fool because he threw up a $12 a week job in a grocery store in Hartford, Conn., to accept one at the modest stipend of $3 a week in a motor car salesroom.

To-day Russell P. Taber controls a big slice of the State of Connecticut on the Reo. He has one of the largest establishments in the East and employs 60 people. He gets his cars by the trainload hence he is called Trainload Taber.

Russell P. Taber first saw the light of day on a Pawling, N. Y., farm, Dec. 8, 1887. Taber followed the farm until he was about 14, but soon entered the employ of the local grocer, a strict disciplinarian with well-defined ideas as to youthful deportment.

To Taber the motor car was enticing. He responded to the call in sweeping out the dingy salesroom. After a year and one-half of this sort of thing he accepted a driving job where he established a reputation for rugged honesty.

Two and one-half years later he had an opportunity to go into business in a small way. He embraced it. He had no idea of conducting a business that would expand to present day proportions. Retail sales then were not what they are to-day. Taber's work was cut out for him. He went at it with vigor.

At the start he felt and knew he could sell cars. He did. He made money from the start. In 1909 he opened a store at 1100 Main Street, the same one he swept for someone else. This was a hole in the wall with space for three or four cars.

In need of more commodious quarters he removed to 334 Pearl Street. This location he vacated a few days ago to occupy the three-story and basement fireproof structure at 128 Allyn Street, comprising some 40,000 sq. ft. of floor-space. It is one of the chief show places of automobile row.

The Why:

"To what do you attribute your success?" he was asked.

"Service, hard work, legitimate business methods, correct accounting, knowing where I stand every minute, not having any guesswork, and sound organization."

Three years ago Taber inaugurated a 50-hour free service plan issuing coupon books to buyers of new Reos entitling them to this number of hours of labor on their cars. On an average it required something like two and one half years to use up the books. The plan was a jolt for other dealers in the city. The scheme worked admirably. Every Reo owner is a Reo booster.

Taber treats them all squarely and, though his position as chief executive necessarily means he must have considerable time to himself, he is accessible, ready to meet them all, in fact as the song has it, "the same good fellow he has always tried to be."

He is an agreeable person, is well liked by the other dealers and is a member of the show committee of the local dealers' association. He married in 1910.



Russell P. Taber

Hartford, Conn.

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Do *You* Get Turned Down?

You Must Read This

WHEN you go out in the morning full of pep and spizz with 20 prospects lined up how many do you close?

If you try to sell GOODS you lose a lot of sales.

You've got to sell IDEAS. Ever think of this before?

A Brand New Idea In Salesmanship

"SELL ideas and you will never be turned down." Retail motor car dealers and salesmen doubtless will find much food for thought in this sentence and in the rest of the address on "The Education of Salesmen," delivered before the Salesmanship Club of Milwaukee at its weekly luncheon this week by J. Frank Dechant, Pittsburgh.

Dechant is a trust company official and expert on the education of salesmen and saleswomen. He declared that the greatest educational movement of all times in educational work of business is now under way, and this has for its object of attaining the day when every person who sells—whether service, motor cars, insurance, diamonds or what-not—will be able to stand up and say, "I AM NEVER TURNED DOWN."

"Here is the point," he said. "Let us all work to the proposition that we shall not try to sell goods—be they policies, pianos or perfumes—per se. Sell ideas. First of all, never approach a man or woman unless you have an idea to sell. Then, sell the idea. This applies whether or not you are behind a counter, on a delivery, or doing outside selling.

"The result will be this: You will never be turned down. You have implanted an idea. It will 'get across' proportionately as your idea gets across. Your idea may require amendment; but, you never lose a prospect. None whom you attempt to sell will ever cease to be a prospect. You cannot be turned down."

Dechant said further: "There will be a campaign of business education such as this country has never dreamed of. 'I am never turned down,' every salesman and saleswoman will say some day, and the entire nation will profit by it.

Implant an Idea

"I do not mean to say that no salesman or woman will ever again lose a sale when that period is reached. But, selling primarily is to implant an idea into the prospect's mind—give him or her a constructive suggestion. The salesman or saleswoman who does that much, and believes that it has been accomplished, will never lose courage, and will always be positive. The fear of the turn-down will have been dispelled; the prospect will ever remain a prospect.

"There are three kinds of laws that every person must obey or stand to suffer the consequences:

"1—Fundamental;

"2—Statute;

"3—Conventional.

"One may get by in breaking the latter two because one doesn't get caught, but the fundamental laws absolutely cannot be violated without a penalty. Obedience to these fundamental laws is what makes salesmen and saleswomen.

"The value of a salesman or anyone who seeks reward and livelihood for employment, is based upon the amount of supervision that is required to control his effort. Supervision is necessary because errors are made. Error may be of omission or commission. Why are errors made?

Why Are Errors Made?

"Because negatives get mixed in with positives. Body, intellect, feeling and will control this. No matter how negative a man may be, he can be developed toward the positive. That sort of development is true education. A man may not be able to read or write and still be educated and be able to do some important work well, and without expensive supervision.

"Consider the positives and negatives of 'body.' There is digestion, and its negative is indigestion. It is obvious that the one will make and the other will break.

"Now take the mind, the intellect. There are thinkers and the thoughtless. Many say they have not a good memory. Everyone has a good memory, at least every normal person, but doesn't use it.

"The rules of memorizing are to receive a thing right, record it right and retain it. When you want to remember anything, try to follow the rule.

"The retention of a thing is the most neglected portion of the rule. Apply vital interest and the problem will be solved. You say you have not a good memory. All right, I will borrow $25 from you, and fail to return it because I think that you will not remember it. But you will! Why? You have a vital interest in the $25. Develop a vital interest in your work, whether salesman, saleswoman or manager.

Constructive Imagination Needed

"Constructive imagination is going to be developed more than ever before. Sales managers as well as members of their forces are just beginning to utilize this tremendous power with effect. Some have used it, hardly conscious of the principle. Constructive imagination is combining concepts of the mind. Bud Fisher has the principle. He will

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never run out of ideas. Thomas Edison has it. He says that only one-millionth of the combinations of the concepts of electricity and its uses have been found.

"Let me illustrate in another way. A bootblack comes into our offices in Philadelphia every Saturday. 'Shine?' he cries, sometimes with a show of energy and sometimes not. He always got some business.

"One Saturday I called him back and told him to stand still at the elbow of every prospective customer, until the man or woman looked up at him; and then say, 'Let me give you a good Sunday shine.'

"He trebled his business, and more.

"There was a girl in my department but the boy did not ask her about a shine. I inquired why. 'Oh,' said the lad, 'she has never had a shine since I have been coming here—she's a girl, anyway.' I finally got him to go up to that girl, and the boy went me one better.

"As she looked up at him from her work he said, 'Say!' and then repeated his great selling talk—one sentence. Not only that, but he put his stand down, and her foot came out as nicely as you please and went onto the stand. Think it over, sales managers, and salesmen, and women.

"The negative of constructive imagination is dullness. Under the heading 'feeling' or 'heart' we have these positives and negatives: Faith, doubt; courage, fear; honesty, dishonesty, and many others.

Have Faith in Yourself

"Faith does not mean conceit. Have faith in yourself, your house and your goods. Many a salesman has gone out with doubt in his heart, and carried the thought, 'I can't sell him, but I must go in so I can make an honest report to the house.' The sale does not materialize and these men pat themselves on the back for having such excellent and almost infallible judgment of the prospect.

"Sales managers, why do you persist in sending out green men to some tough old customer, knowing the new man hasn't but very little knowledge of the house, the goods; therefore, not faith in himself.

"In days to come, sales managers will do this: They will send the green man to a customer who has been called up and primed for the proposition. The prospect will, by arrangement, make the new salesman do his best. He will balk and kick and fuss, but he will give an order.

What Our Wills Make Us

"No one who sells, whether goods or ideas, can succeed and not be thus: 'And this above all, to thine own self be true.' We are what our wills make us. It is decision against indecision, perseverance against the quiver and the kick, punctuality against tardiness, concentration against scatter-brains, tact against tactlessness.

"Every error—the thing that determines how much supervision you need—is the result of negatives here listed and the hundreds of others that might be named.

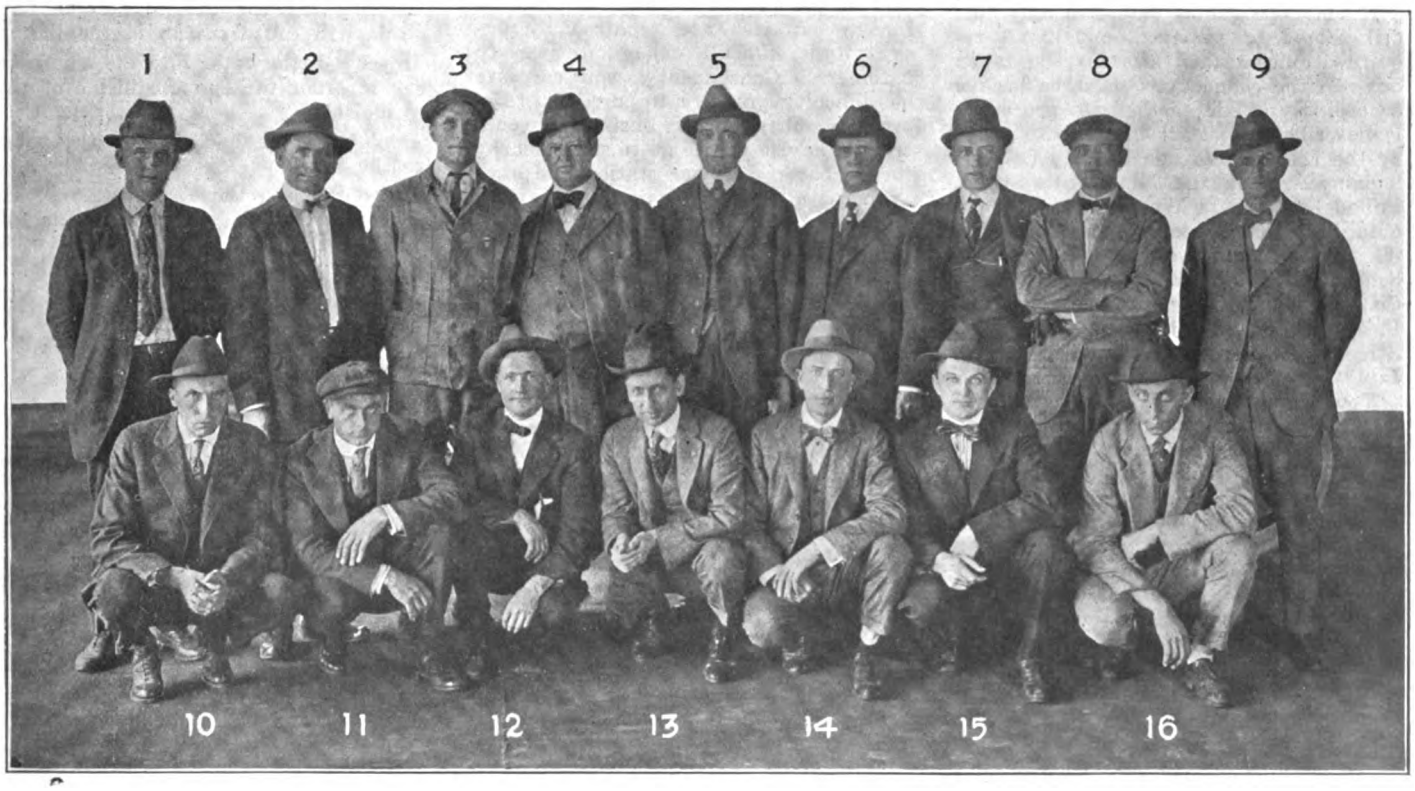
"Develop positives. This room here may be utterly dark. You do not let it go at that. You bring in light—sunlight, electric light or gas. There is no darkness.

"There is no room for negatives in the mind if it is filled with positives. The more positives there are, the fewer negatives, or the reverse.

"*N* plus *U* equals *E*, is the formula for advancing in your positions; get a hold of the positives, Nourish them. Use them and you have Education. It is regrettable that most of our schools Nourish, but they do not Use.

"Always get an idea before you try to sell one, whether with or without goods, pianos, policies, suits, diamonds, cameras, drugs, automobiles, service, shoes, fuel, lumber or a pot of paint."

Some Dealers Who People Peoria's Automobile Row



1—R. F. Kilpatrick, Chevrolet; 2—S. Reintz, Dodge; 3—F. I. Archdale, Hupmobile; 4—J. B. Ehresman, Auburn; 5—L. H. Smith, Auburn; 6—Frank S. Cloud, Hudson; 7—George Cummings, Overland; 8—H. A. Shay, Hupmobile; 9—J. E. Whitten, Moline-Knight; 10—Phil Pasquay, Stearns-Knight and Jordan; 11—Larry Malone, Saxon; 12—R. F. Beach, Moline-Knight; 13—A. H. Champlin, Hudson factory representative; 14—E. Mongerson, Auburn; 15—I. W. Harrison, Moline-Knight; 16—R. Doering, Dort

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DO IT THIS WAY - QUERIES ANSWERED

Replacing Wood Separators

Editor Motor World: I would like a little information in regard to the work of putting in new wood separators in a storage battery.

Do you take each cell out separate or do you take all the cells out together and leave the connections all just as they are?

Can the small Presto torch which the Prest-O-Lite Co. sells for 50 cents be used to burn the connections with or do you have to have a special outfit for this purpose?

What should be put on the connection where it is to be burned to make the lead run together good?

I notice that when the new separators are put in that the plate and separators are spread at the bottom so that they will not go in the jar without squeezing them together. I would like to know if it would be all right to squeeze them in a vise between two boards or would this injure the plates?

Is it necessary to build a form around the connection when burning it to the battery post to keep the connection from running or is this done so quick that the connection does not get hot enough to run?—P. F. Robnett, Star Garage, Kinmundy, Ill.

If only one cell is defective only this cell should be removed, but if all require attention then all must be taken out and the connections must be broken accordingly. The method of procedure is described in detail in a book issued by the Electric Storage Battery Co., Alleghany Avenue and Nineteenth Street, Philadelphia, Pa. We believe you can obtain this book merely by asking for it. You should also get instruction books from the Willard Storage Battery Co., Cleveland, Ohio, the Gould Storage Battery Co., 30 East Forty-second Street, New York City, and the Prest-O-Lite Co.

You cannot use the small Prest-O-Lite torch which you mention for lead burning. You must buy a special outfit. The Prest-O-Lite Co. makes one for this purpose which sells for $21.00. It is an oxy-acetylene torch.

Full information on lead burning can be obtained from a pamphlet which the Prest-O-Lite Co. will send you free of charge if you will write them for it.

If, after new separators are put in, the unit will not go back into the jar, pressure should be applied after a board has been put on the side, just as you suggest.

We have been advised time and time again by the storage battery manufacturers that only experts should do the work you are planning to do. We feel that you will find it is more trouble than it is worth. Unless you train yourself especially by going to some storage battery service station and working there several months you will not be competent to do very satisfactory work. We have talked with many dealers on this subject and they feel that for them to attempt to repair storage batteries is merely jeopardizing their trade. Suppose you repair a storage battery and it proves defective—the chances are that you not only loose your customer, but you lose the pay for the job. Even when storage batteries are repaired by experts it is difficult enough to satisfy customers. Consequently you can see the difficulty you are up against. Before you embark in this business I would strongly advise you to go to some nearby storage battery service station and have a talk with them regarding the various difficulties to be overcome and what is the best way to do it.

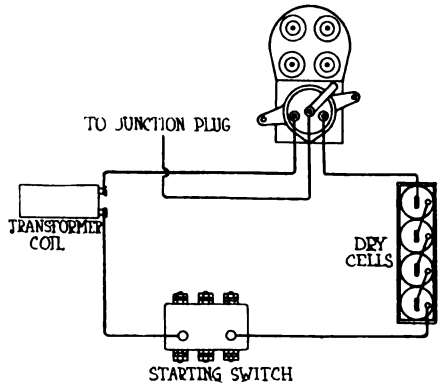


Fig. 1—Ignition is furnished by a Simms high-tension magneto assisted by four dry cells and a non-vibrating transformer coil to facilitate starting. The battery circuit switch is only closed when the starting pedal is depressed, so that as soon as the pedal is released the magneto begins to furnish the current

Practical Vulcanizing Hints

By D. R. Cain, Instructor, Goodyear School of Tire Repairing

For Small Tube Punctures

In fixing a pinhole puncture use a patch several times larger than the injury. This requires very heavy pressure to obtain a smooth surface. There is a much better way. Trim the hole just enough to remove all ragged edges, but enlarge it as little as possible. Clean thoroughly and cement. When the cement has dried force a small thread of gum through the hole with an awl, trimming flush on the outside. In curing use just enough pressure to hold the tube firmly on the tube plate. A piece of holland or tracing cloth laid on the plate will ensure a smooth surface.

Making Air Bags Last

The life of an air bag can be greatly lengthened by observing the following rules:

When the tire is placed in the mold the clamp screw should be tightened until the exact size of the tire is obtained, and then given about one-half turn. This slightly decreases the size of the cavity and relieves the strain on the air bag, in addition to giving perfect results in the cure.

Never allow the bag to become flat, as this will cause cracks in the lining.

Inject a little water into the bag each week in order to keep the inside of the bag moist.

Don't pull the bag out by the tube. Use the tape.

By observing these precautions air bags have been used for as many as 145 cures.

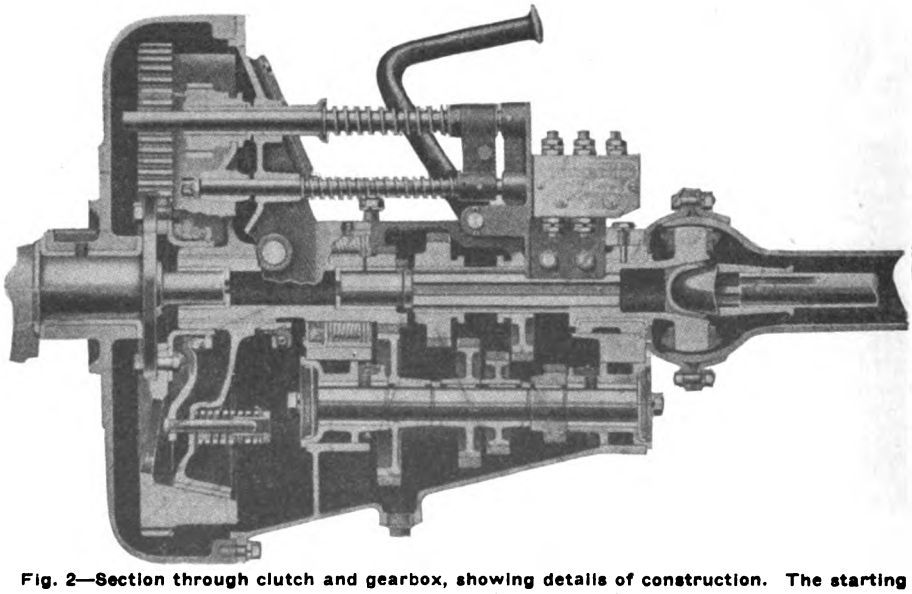
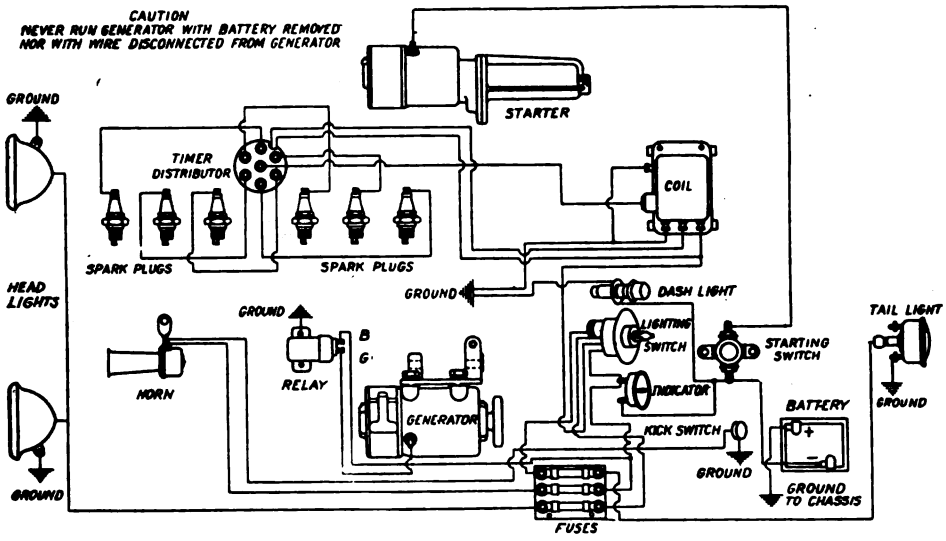


Fig. 2—Section through clutch and gearbox, showing details of construction. The starting switch is shown at the upper right

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SAXON SIX WIRING DIAGRAM



A Wagner two-unit starting and lighting system is used with Remy ignition

Retreads in Sectional Molds

Here is a method that will give very satisfactory results:

Cure each section one-half the regular time. After completing this operation again place the tire in the mold, lapping just half-way between the points made on the first round, and cure for the remainder of the period. In this way no portion of the tread will be overcured.

Lap Plies in Sectional Work

It is not advisable to butt the plies of fabric in building a section, for they will draw apart in curing, due to the expansion and the flow of the gum. To make allowance for this action, lap the new ply about ⅛ in. over the old fabric.

Frozen Materials

Repair gums and fabrics received in cold weather sometimes appear lifeless, when, as a matter of fact, they are merely frozen. The freezing does no harm, but it is a good plan to thaw out the repair stocks in a warm room before using.

Circumventing the Horn Blower

Editor Motor World: I saw in one of your late Motor Worlds that someone wants to wire up an electric horn so no one can blow it while the car is standing. I had the same trouble but soon fixed it. All I did was to attach the wire to the cutout. You can only blow the horn when motor is running. Almost any make generator will make a horn blow at 10 miles. I find this works well.—W. E. Altheide, Sutter, Ill.

To Remove Clutch from Maxwell

Editor Motor World: Is the Ford Motor Company making a 1-ton truck? If so, please give specifications.

Please give diagram of ignition wiring on Maxwell 25.

What is the firing order?

How is clutch removed for relining?

What years were Nyberg cars built and what were their cost?

Keep up your department of Better Mechanics and we will see that our subscription to your valued journal does not run out. It is the best ever. —G. J. Blancett, Gerlach, Nevada.

The Ford Motor Company is planning to make a 1-ton truck, but has given out very little information concerning it. We have it on good authority that the design will be similar to that of the Ford touring car except that the former will be more rugged and the machine will have worm drive. We have no details outside of this.

Fig. 1 illustrates the ignition system used on the Maxwell 25. Ignition is furnished by a Simms high-tension magneto assisted by dry cells, and a transformer coil facilitates starting. The system is a dual type having a small non-vibrating coil which is attached to the frame of the car. Four dry cells are used in connection with the coil. The switch operating the battery circuit is in connection with the starting switch, and when the starting pedal is depressed, thereby throwing the starting motor into operation, the current flows through the switch, coil, and magneto. As soon as the engine starts or the starting pedal is released, the switch is automatically disconnected and the engine runs on the magneto.

The firing order is 1-3-4-2, the front cylinder being No. 1.

The clutch is removed as follows, Fig. 2. Disconnect the universal joint, push back the ball joint, remove foot brake and emergency brake lever.

Remove the cap screws which hold the gearbox to the flywheel housing, then pull it off.

To remove the clutch plates, take the three nuts off of the spider, and then remove the clutch springs.

Nyberg cars were built in 1911, 1912, 1913, and 1914 and the prices for the different models were as follows: 1911 runabout, $1,150; touring car, $1,200; larger model, $1,750; 1912, 40 hp., $1,250; 60 hp. $2,000; 7-pass., $2,100; 1913, model 37, $1,295; 45, $1,700; 60, $2,000; coupe on this chassis, $2,600; limousine, $2,700; 1914, 37, $1,285; 40, $1,550; 42, $1,750; 45, $1,950; 60, $2,350.

Louisville Garage Rates

When gas, oil and grease are purchased from the company:

Per Month

Roadsters, small, list under $1,400	$15.00
" large, " over 1,400	20.00
Tour. cars, small, " under 1,400	17.50
" 5-pass., " over 1,400	20.00
" 7-pass., " over 1,400	25.00
Coupes and enclosed drive cars	25.00
Limousine	30.00

Electrics

Runabouts	$30.00
Coupes, victorias, etc	35.00
Cars with Edison equipment, extra	5.00

Transient

Wash, polish and storage, first night	$2.00
Wash, polish and storage, each additional night	1.50
Storage ONLY, per night	1.00

Cleaning

Wash ONLY	$1.00
Wash and polish	1.50

Dead Storage

One-third regular rate	Per month
Separate body storage, per month	$5.00

Repairs

Per Hour

Day labor, according to work	$0.60
Night work and outside work	.90
Sunday and holiday labor	1.20
Shop room for chauffeurs when owners furnish tools	$0.60
Chauffeurs furnished to drive owner's cars (day)	.60
Chauffeurs furnished to drive owner's cars (night)	.60

We will not be responsible for cars left for repairs or storage in case of fire, water, cyclone or other accidents, or if car is damaged in delivery to and from our garage.

We are not responsible for articles left in cars or in the shop.

(Editor's Note—This is printed on a heavy card, 14 x 24 inches, and framed.)

Editor Motor World: Having just received a copy of Motor World from a friend, I think it is one of the finest motor papers I have ever read. Please enter my subscription for one year and send bill to me.—Carl Ament, 1418 Margaret Street, Marshall, Pa.

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Repairshop Shortcuts

From The Motor World Roadman

(No. 1081) GEAR PULLER

This gear puller catches the gear through the flange holes by means of four L-shaped legs, and removes the gear by means of pressure applied through the central screw in the usual manner. The feature of this puller is the method of attachment of the legs to the cross. The holes in the cross are oblong, and the body of the legs is square, permitting the puller to be adapted to many gears.—Charles Ballenger, General Motor Service Co., Indianapolis.

(No. 1082) WIRE STORAGE

Many kinds of wire are necessary in the service station, and these may be systematically stored on large spools arranged in the manner shown. Spools are provided for each kind of wire kept in stock, and are mounted in racks, placed in tiers of three. One tier will carry small, medium and heavy insulated wire; another twisted lamp-cord, and two sizes of high tension wire; and a third, insulating tubing, annealed wire and piano wire. The amount of wire needed may be quickly unwound, measured and cut off without waste.—W. A. Terrgeon, Packard Service Station, Chicago.

(No. 1083) REPLACING GREASE CUPS

Replacement of the common type of hollow threaded grease cup is difficult, as the use of a Stillson often injures the body of the cup. Such cups may be quickly removed or replaced by the wrench shown. It consists of a threaded handle, screwed into the inside of the grease cup body, and a lock ring that permits the cup to be turned through the threaded handle. After screwing the cup in place, the lock ring is loosened, and the handle removed.—Charles Ballenger, General Motor Service, Indianapolis.

(No. 1084) CHASSIS STAND

All work, such as painting or overhauling, is facilitated by the use of the chassis stand shown. The wheels may be removed, rendering all parts accessible, and the chassis may be moved or slewed in any direction. With the exception of the iron braces and the castors, the stand is wood throughout.—Nordyke & Marmon Co., Indianapolis.

(No. 1085) STARTING CLUTCH PULLER

This is a special puller for removing the starting clutch on the Studebaker. It is a steel plate, carrying three screws; the end screws being 2½ in. long, threaded ⅝ in. S. A. E. standard, and the central screw 6 in. long, ⅞-in. thread standard. The small screws are caught in the tapped holes already in the clutch face, and the pressure applied to the crankshaft end by the central screw.—F. L. Cannon, Studebaker Service Station, Champaign, Ill.

(No. 1086) FRAME HORN STRAIGHTENER

Bent or crumpled frame horns may be pounded back to shape over the frame dolly illustrated. It is iron, cast to exactly fit into the inside of an unbent horn. A pattern for such a dolly may be made by taking a plaster of Paris cast from the unbent horn, though the better practice is to cut a pattern from wood.—Charles L. Ballenger, General Motor Service Co., Indianapolis.

(No. 1087) REMOVING VALVE TAPPET GUIDES

Valve tappet guides may be pulled from their seats without injury by the puller illustrated. A piece of pipe, larger than the tappet to be removed, is placed over the tappet, and the removing force applied by screwing down on the upper nut threaded onto the central screw. The force is transferred from the screw to the bushing by a lower nut, that is smaller than the bushing. A bushing puller of this type may be made up for almost any bushing.—F. L. Cannon, Studebaker Service Station, Champaign, Ill.

(No. 1088) EXTENSION SOCKET WRENCH

By mounting a socket wrench head in the end of a 4 ft. length of 2-in. pipe, an extension wrench is made that facilitates the removal or replacement of the nut on the rear axle drive pinion. A steel ring is first shrunk on the end of the pipe, to provide strength, the pipe is heated red, and the cold socket wrench head driven into the pipe. When cool, the head is firmly held in place. Because of the long handle, a pipe wrench may be used to get a leverage, and the workman may work from an uncramped position.—F. L. Cannon, Studebaker Service Station, Champaign, Ill.

(No. 1089) VALVE GRINDING TOOL

This tool permits a bit stock or breast drill to be used in grinding valves. A piece of ½-in. square steel stock, about 6 in. long, is turned down at one end to fit the breast drill chuck, and the other end is split to carry the swiveled jaw, as shown. By using a bolt and nut to attach the jaw to the shank, several interchangeable jaws may be made and the one best suited to the type of valve may be readily used.—F. L. Cannon, Studebaker Service Station, Champaign, Ill.

(No. 1090) STOCK CARDS PROTECTION

A system of protecting stock cards. A strip of celluloid is tacked along the face of the stock bins and the cards inserted beneath it. Though the cards are clearly visible, and may be removed or changed at will, they cannot become soiled, mutilated or lost.—W. A. Terrgeon, Packard Service Station, Chicago.

(No. 1091) REAR AXLE STAND

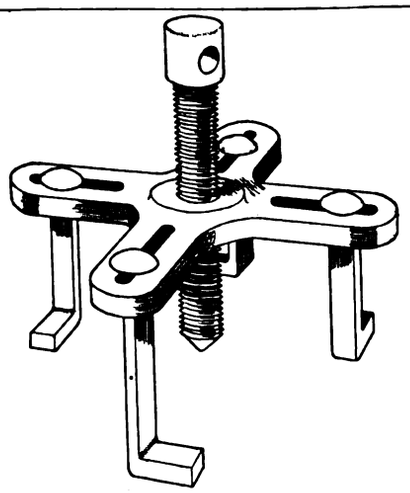
Rear axle work is facilitated by the use of a special stand. The one illustrated possesses several important features. It holds the assemble through the third member, or torque tube, thus permitting the axle to be turned over, rendering the parts more accessible. Also either side of the axle housing may be easily removed.

SOUTHERNERS:

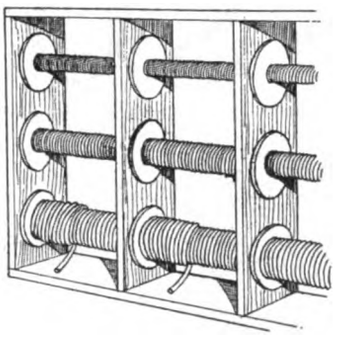
"LAND O' PROMISE," the story in the Feb. 21 issue of Motor World which told of the need of good mechanics in the South has brought us a number of letters from men who seek employment.

If you need men, write us and we will put you in touch with them. These men read Motor World.—Editor.

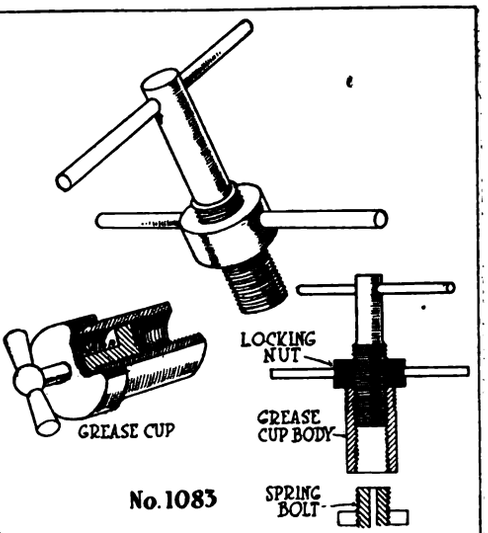
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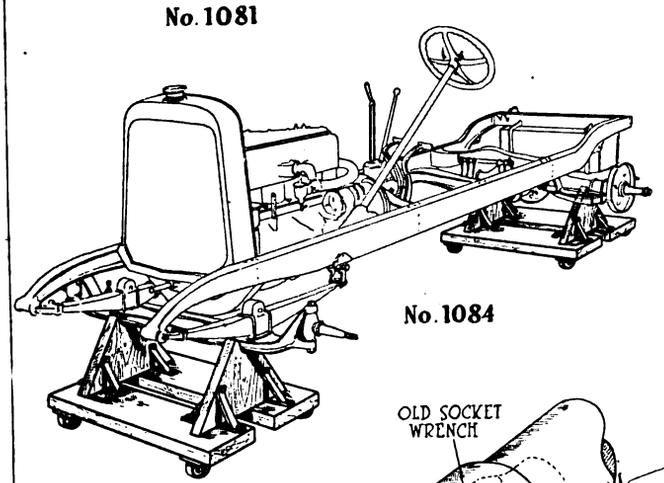
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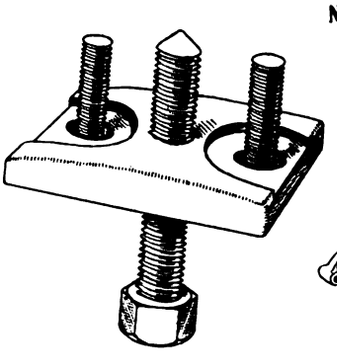
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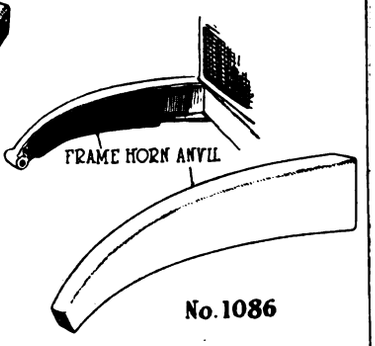
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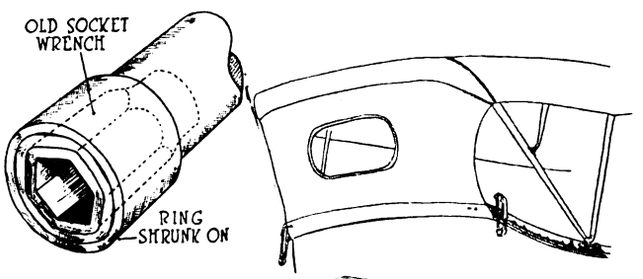
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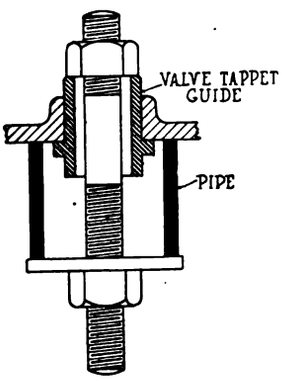


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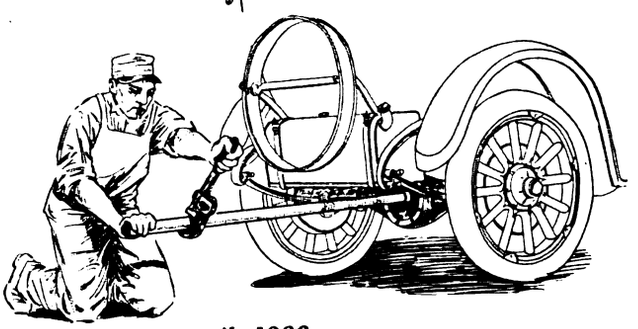


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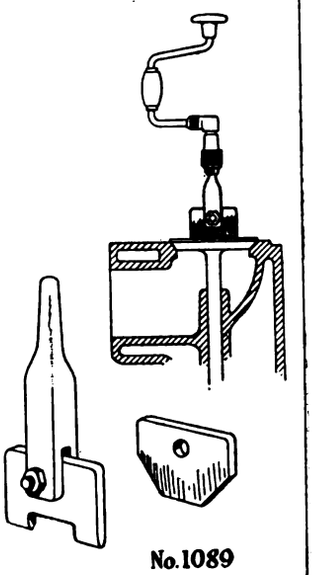




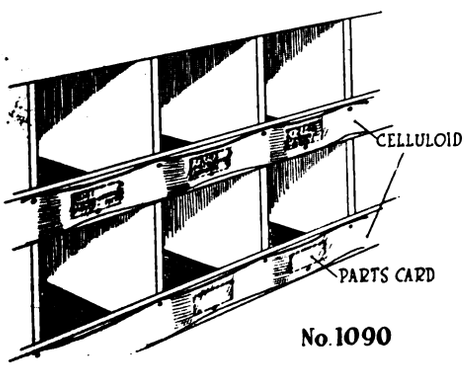
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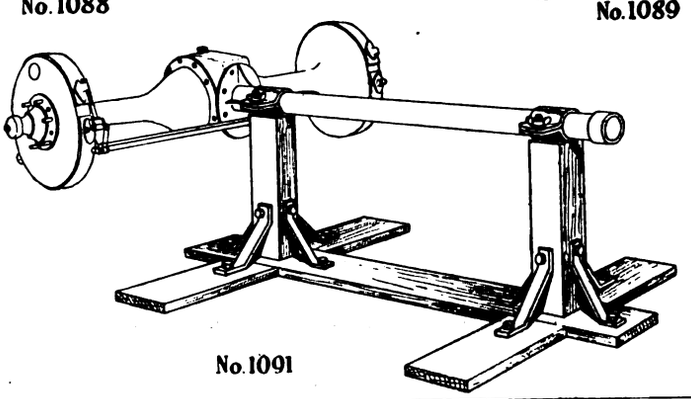
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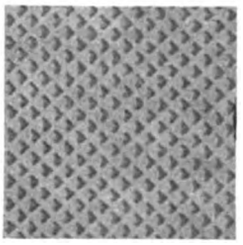
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ACCESSORIES



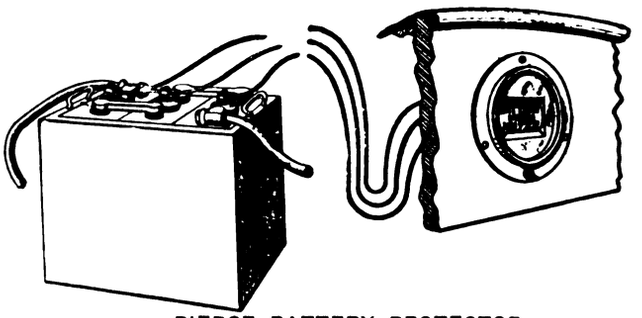
DEFENDER LOCK FOR FORDS

Only a screwdriver is required to attach it, and when it is in place it cannot be removed as long as it is locked. Price, $3.50.—Defender Auto Lock Co., Free Press Bldg., Detroit, Mich.



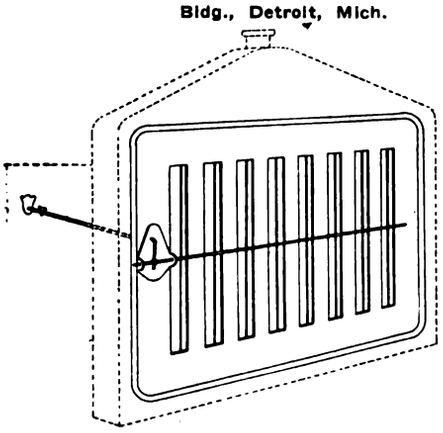
SAFERLITE HEADLIGHT LENS

A headlight lens which uniformly diffuses the light, thus eliminating the glare. Price, 9 in., $1.50; 9 to 10 in., $1.75; 10 in. and over, $2.—Saferlite Lens Co., 200 Fifth Avenue, New York.



PIERCE BATTERY PROTECTOR

A device which shows when the water is low in the battery. It is simple in construction and will operate on any system.—Pierce Exide Service Station, 102 S. Perry Street, Peoria, Ill.

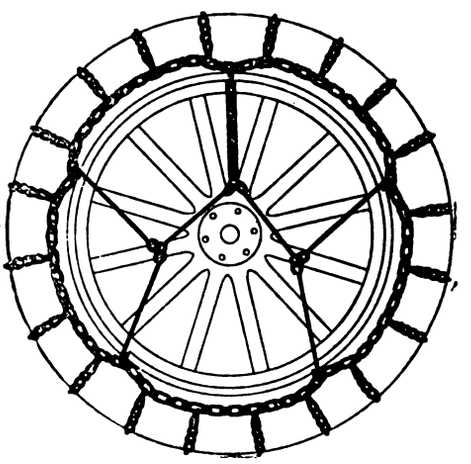


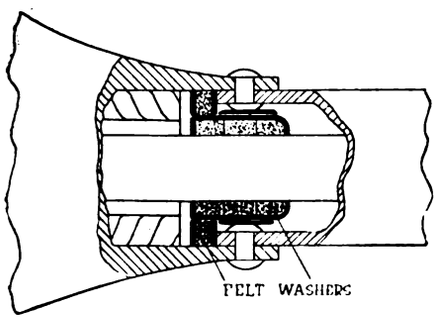
H-M METAL RADIATOR SHIELD

The amount of air passing through the radiator is controlled by this grating damper which is operated by a lever on the dash. There are three positions, completely open, half open and closed. It weighs less than 2 lbs. and may be attached to any type of radiator.—H. M. Radiator Shield Co., Indianapolis.

MERCHANT'S CHAIN TIGHTENER

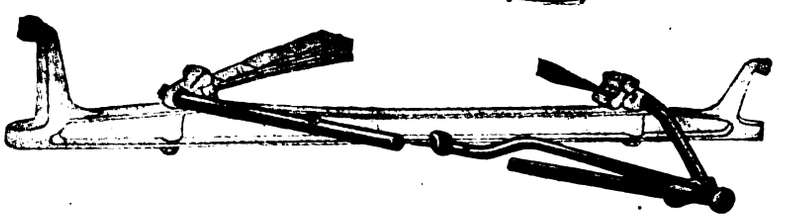
A strong and simple device for keeping the skid chain tight. Since it catches the chain at five points it gives even tension. Price, 50 cents per pair.—M. H. Merchant, Syracuse, N. Y.





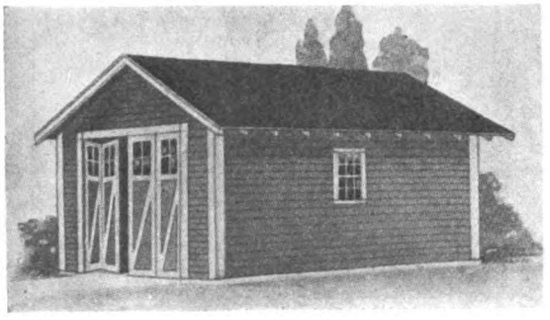
SHURNUFF GREASE RETAINER

A device for preventing leakage of grease out of the Ford rear axle. It consists of four washers, three being felt and one asbestos suitably housed in a metal casing. Price, per pair, 90 cents, Shurnuff Mfg. Co., St. Louis, Mo.



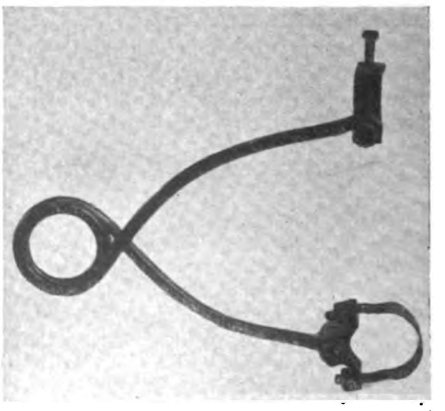
TRI-POD RADIUS ROD

Especially strong radius rods for Fords made of solid cold rolled steel and having an additional rod which runs to the center of the front axle. Price, $4.50.—Auto Parts Mfg. Co., Milwaukee, Wis.



MANCHESTER SECTIONAL GARAGE

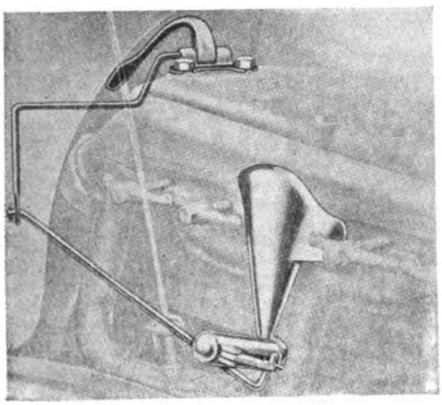
One of many sectional garages built by the Manchester Mfg. Co., St. Louis, Mo. This particular design is made in various sizes, from 8 x 14 to 20 x 20. The material is yellow pine.



ECLIPSE SHOCK ABSORBER

The feature of this shock absorber for Fords is that in attaching the arms are given a tension of about 1 in., thus giving the same effect as the addition of 150 pounds weight to the rear seat. Price $5.—Kanesteo Mfg. Co., Canisteo, N. Y.

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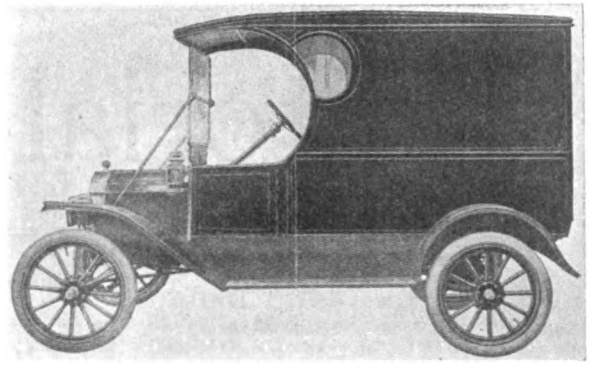
FOOT AIR ACCELERATOR

A pedal-operated device which gives warm air to the intake manifold, thus permitting a most accurate adjustment of the mixture to meet present conditions. Price, $6.—Foot Air Accelerator Co., Cincinnati, O.



LIGHTING OUTFIT FOR FORDS

The battery shown is part of a complete equipment of electric side and tail lights, together with battery box, switch, etc., wired and installed for $32.50. Ignition current for starting is also provided for. The battery is guaranteed for one year.—General Storage Battery Co., 2005 Locust Street, St. Louis, Mo.



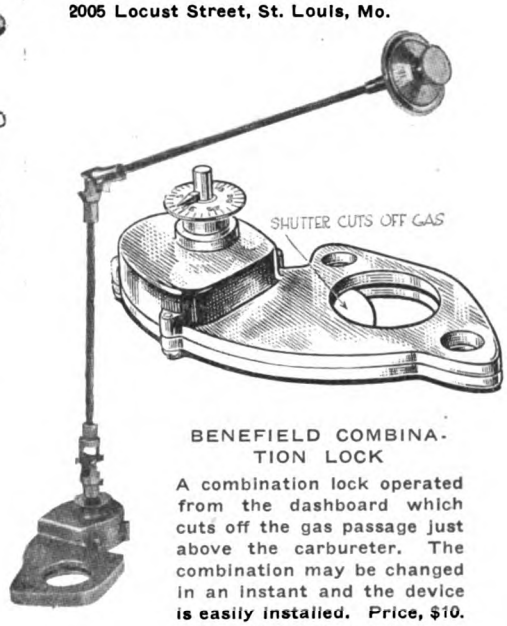
DELIVERY BODIES FOR FORDS

One of many designs. The frame is of specially selected wood and the panels are steel. The roof and floor is hardwood. It is painted blood red and striped with black. Loading space 42 x 60 in. by 54 in. high.—Commercial Auto Body Co., St. Louis, Mo.



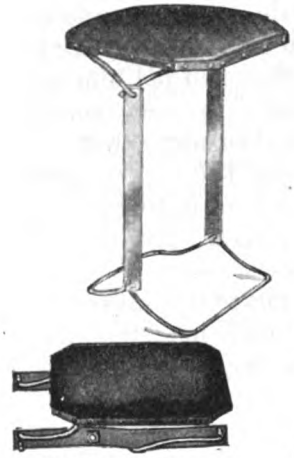
PERFECTION RIM TOOL

It expands or conflects split demountable rims by the simple movement of the handle and is adjustable to all sizes of rims. Price, $2.50. The A. & A. Co., Minneapolis, Minn.



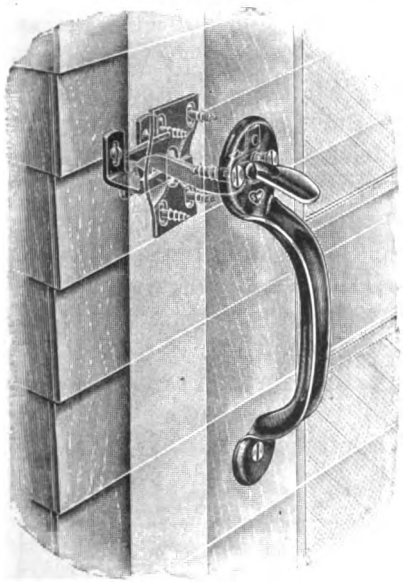
BENEFIELD COMBINATION LOCK

A combination lock operated from the dashboard which cuts off the gas passage just above the carbureter. The combination may be changed in an instant and the device is easily installed. Price, $10.—Security Automobile Lock Co., 2106 Boulevard Pl., Indianapolis.



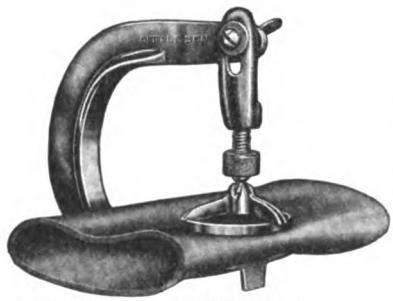
BUFFINGTON AUTO STOOL

A folding stool which may be used as an auxiliary seat. Sizes, 7½, 11, 15, 17 in. high; seat 9 x 9½ in. Seat upholstered in black or maroon imitation leather. There are many other styles.—C. A. Buffington, Berkshire, N. Y.



STANLEY BACK CATCH

It holds the garage door tight against the wall. The escutcheon plate is struck up to act as a bumper against the catch plate, thus taking the shock of stopping the door. Complete with screws.—Stanley Works, New Britain, Conn.

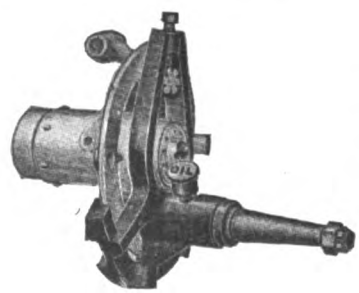


EKERN'S EMERGENCY AXLE

With this device the Ford may be placed on its own wheels in less than two minutes when an axle shaft is broken. It hooks under the flange under the axle housing and a set screw at the top holds it firmly. Price $6.—Ekern Bros. Mfg. Co. Flandreau, S. D.

LITTLE BEN VULCANIZER

A tube clamp to be used in connection with ordinary patches. It is simply to supply the pressure to produce a firm patch. Enamel finish, $1,00; nickel finish, $2.00.—Arsenal Varnish Co., Rock Island, Ill.





TUNGSTEN SPARK PLUG

It has a heavy porcelain core seated above and below in large annealed copper asbestos gaskets. The firing points are genuine meteor wire. The central electrode is heavy and the insulator has a petticoat end.—Tungsten Mfg. Co., Marshalltown, Iowa.

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Editorial Observation

Look Down!

THEY tell a story of a man, fired with the enthusiasm of youth, who searched the whole world over for fortune. At length, wearied by his travels and discouraged by his failures, he returned to his native city, content to lie down and die. He would have a little garden around his home—a beauty spot in which to rest. And in digging the garden he found the gold that had led him around the world.

Which just goes to show that it pays to sweep around our own door-steps first.

The world is too full of dreamers with vision that leads them on and on until they pass by the fortune that lies at their feet. The world is not full enough of plain pluggers.

Look far away into the future. Napoleon achieved the success that made his name immortal by planning ahead. He said once: "I never plan less than two years ahead."

But don't overlook the opportunities that lie close by. Of what avail is a territory that stretches miles away on the horizon if we overlook the fallow fields in our own backyard.

One man never carried life insurance. "Why?" we asked him. "Because," he answered, "no one has ever asked me to take out a policy." Yet an insurance agent lived in the same house with him for many years!

And so it goes to the uttermost ends of the earth. We who live in the richest territories are straining our lives away to enlarge that territory, to cover more ground; when all that is required is to stick close to our own homes and WORK.

That is what is meant by intensive merchandising. It means looking a little further than our own noses—but not too far. For if we look too far we will look over the heads of those near us.

Get a File

A SUCCESSFUL business man is well dressed. And it follows that a successful business should be well dressed. Banks, commercial houses, department stores, business offices of the better class—all these reflect their success in their appearance.

To get right down to brass tacks, good office equipment is not expensive. To present a good appearance, a neat, business-like appearance which will inspire the confidence of patrons, it is not necessary to spend a lot of money.

Letters, catalogs, trade literature, etc., should be properly filed. Yet how often is it merely chucked into a corner to accumulate dust and dirt and advertise the slovenliness of the proprietor of the place. A small vertical letter file can be bought for a few dollars. Get one.

The top of a desk littered with papers, catalogs, orders, shop cards and a hundred and one other things is anything but inviting to a person entering what is supposed to be an office. Such a person is likely to say: "Gee whizz, is that the way this man does business?"

File these things. Get them out of the way and have a clean WORKING desk. File them so you can find them instantly when you want them.

Start the summer rush season right.

Get a letter file.

THE HARDEST THING—

The Average Man Does Is To Get Started

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"SHORTSIGHTEDNESS"

Editor Motor World: I wish to thank you for your editorial in the Feb. 21 issue of Motor World, "Shortsightedness."

I hope the head of every manufacturing department in every factory reads this article. If they read it and put the idea to work, it will result in greatly improved cars in the future.

I do not know to what car you refer, but I handle one at the present time with such an inherent fault. This trouble is in the rear axle. The factory seems to be willing to replace as many parts as might go bad during the first year, but to remedy the trouble before shipping the car out—"Nothing doing"!

Haven't they delivered more than 18,000 of these cars to dealers during the past year? Haven't some of these same model cars captured some cross country records between cities and some of the big hill climbs? Doesn't this show that there can be nothing wrong with the construction of the rear axle, or it would not stand up under such grueling service?

Such is the answer of the factory.

However, the results of troubles are beginning to tell in our sales department. Sales have dropped off about 50 per cent for the first 2 months this year as compared to the same months last year. Prospects have heard rumors of this trouble, other dealers and their salesmen know about it, and gradually it will make impression enough on the factory heads that they will make the necessary changes. But it is a question whether it will not be too late then.

Starting out with a popular-sized, popular-priced car, this factory could have gone right to the front among the manufacturers if they had been willing to take a little advice from their dealers, and carefully investigated each complaint from the men behind the firing line.—W. C. Bringman, manager the Model Garage, Roanoke, Va.

Advance Show Information

Editor Motor World: How does this idea appeal to you in the interest of making the shows more useful? I have sent the money to Boston for a program so as to have it to look over on the train and so know just what I want to see. It is about 2 hours ride from here on the train.—H. A. Fiske, New Bedford, Mass.

Exhibits Were Separated

Editor Motor World: I cannot refrain from setting ourselves right in regard to the Captious Critic. I might state as one specific false statement made by the Captious Critic that every exhibition space was separated from the adjoining exhibition space by a decorative and ornamental projection 3 ft. 6 in. high, consisting of two sections of paneled compo board, divided by a pedestal 18 in. square, in the center, above which stood a papier maché vase 40 in. high, from which protruded a cluster of smilax and American beauty roses extending 2 ft. above the vase, making the projection between each exhibition space 9 ft. 6 in. at the center, as indicated on the enclosed diagram in lead pencil marking. This is only a sample of the unwarranted attack.

There must have been something the matter with the Captious Critic's eyes, his mind and his intellect, if he could not see such divisional lines between exhibition spaces.—Bart J. Ruddle, ass't secretary, Milwaukee Automobile Dealers, Inc.

What READERS *Have to* SAY

Likes Better Mechanics

Editor Motor World: Keep up your department of Better Mechanics and we will see that our subscription to your valued journal does not run out. It is the best ever.—G. J. Blancett, Gerlash, Nevada.

Johnson City, New York

EDITOR Motor World: We notice in your issue of Feb. 21 an item on page 56a regarding Haynes cars sent overland to several points, including Johnson City, N. J. We wish to say that the said Johnson City is in Broome County, New York State, instead of New Jersey as mentioned in your issue. These cars were driven in by Messrs. B. W. Livingston & Sons, who are the local dealers for the Haynes cars.—B. W. Livingston & Sons.

M. & A. M. To Extend Credit Bureau

NEW YORK, Feb. 27—Extensive elaboration of its credit department, the strengthening of other departments now in operation and the addition of varied benefits are planned by the executive committee of the Motor and Accessory Manufacturers association. Since the formation of the credit department in January, 1908, the M. & A. M. has issued upon request, 561,775 reports. During the past year 44,985 reports were furnished members of the M. & A. M. on other companies such as the manufacturers of parts and accessories, jobbers and dealers, making a combined total of 139,470 credit reports for the year 1916. It is proposed to group the different parts and accessory makers. Each group would take in only one product, such as motors, etc. Groups would meet, say, twice a month and points of interest would be discussed. Each group would have its own set of officers and some convenient city would be picked for the meeting, though groups would be directly under the supervision of the Motor and Accessory Manufacturers.

Texas Gets New Motor Vehicle Law

AUSTIN, TEX., Feb. 26—Texas is likely to have a motor vehicle law patterned somewhat after the Callan law of New York State, but having a number of provisions not included in that measure. The law was introduced by R. L. Carlock, of Fort Worth, and has been favorably reported; its passage is said to be practically assured. Among other things annual registration and identification by plates at the front and rear are provided; head lamps must be permanently dimmed; excessive noise or smoke is prohibited, as is a muffler cutout. The speed limit prescribed varies from 30 m.p.h., in open country, to 6 m.p.h. in traffic, with heavy fines for violation, and town authorities are given the power to cancel licenses for a period of six months if laws are violated three times within 60 days.

Arkansas' Strange Laws

LITTLE ROCK, ARK., Feb. 26—Some interesting provisions are contained in a new motor car regulatory bill introduced into the Arkansas legislature. One of them is that if a pedestrian fails to heed the warning of a motorist, the latter must stop and wait until the person walking has gotten completely out of danger; and in case the pedestrian is under the age of 12, the motorist must remove the child to a place of safety before proceeding. Failure to comply with this requirement is only a misdemeanor, it is strange to say, and is punishable by a fine from $5 to $25. A tax of $6 for every 20-hp. or fraction thereof is fixed and the sheriff is allowed 50 cents for collection. The speed limit in towns and cities and crowded thoroughfares is 10 m.p.h. and 5 m.p.h. around corners. Physicians are exempt.

Oregon Lien Law In Force May 17

PORTLAND, ORE., Feb. 19—On May 17, the new automobile lien law of Oregon will become effective. Following are the provisions of the new law: Every person, firm or corporation who has expended labor, skill or materials, including automobile tires, upon any chattel at the request of its owner, reputed owner or authorized agent of the owner, or lawful possessor thereof, shall have a lien upon said chattel for the contract price of such expenditure, or in the absence of such contract price for the reasonable worth of such expenditure for a period of one year from and after such expenditure, notwithstanding the fact that the possession of such chattel has been surrendered to the owner or lawful possessor thereof.

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The RETAIL NEWS.

SOUTHWEST

Barnett Bros., Colony, Kan., are opening a garage.

W. A. Harris, Erkridge, Kan., has opened a garage.

The Ford Car Co., Harveyville, Kan., will occupy the new salesroom and car storage building being erected by Lee Bros.

C. B. Riggs & Son, Herington, Kan., have bought the automobile business of A. D. Martin.

The Taylor Motor Co. building, Hutchinson, Kan., is being remodeled.

A. R. Cogswell, Kirwin, Kan., has bought the garage of Simon & Perkins.

W. A. Schade and George C. Dahke, Manhattan, Kan., have opened a garage.

Richard Rosenfelt, Marion, Kan., has purchased D. F. Oyer's interest in the Oyer & Zeman vulcanizing Company.

Oscar Ek and I. F. Talbott, McPherson, Kan., are occupying a remodeled storage and repairshop Ek is Dodge dealer.

D. G. Roth, Moundridge, Kan., has sold his interest in the Meridian Road Garage to Erwin Buchler.

H. E. Ewart and E. D. Tarvin, Marysville, Kan., are opening a battery and electric service shop.

Roice & Bradley, Osborne, Kan., will open a garage.

Claude Probasco, Sherman, Kan., is moving his automobile business to Talmadge, Kan.

The Simpson-Clark Auto Co., Salina, Kan., is moving into the Wight Building, on North Seventh Street.

The Auto Device Sales Co., St. Louis, has laesed a showroom at 3310 Locust street, Plaza Hotel block, for an accessory store.

The Wolf River Auto Co., Shawano, Wis., has been appointed Maxwell dealer.

Kenedy Auto Supply Co., Kenedy, Tex., is erecting a new garage.

H. P. Daniels, L. O. Buttler and Fred Wykoff, Norman, Okla., are building a new garage.

H. L. Simpson, Ardmore, Okla., is opening an automobile business.

Gray & Beetler, Marceline, Mo., garage owners, have dissolved partnership.

Beetler & McKinney, Marceline, Mo., have opened a garage.

Cotton & Kolb, Maplewood, Mo., will, in future, run the garage previously owned by F. L. Cotton.

J. D. Hurd and John W. Baile, St. Joseph, Mo., have purchased the O. K. Motor Garage. Baile was formerly with Bert Dingley.

The D. S. B. Motor Co., St. Joseph, Mo., will open its sales and storage rooms shortly. The company is composed of Robert E. Davies, P. T. Sherman and Claire Blount.

Gilliam & Steele, Slater, Mo., will build a large garage adjoining their main building.

Arnold & Davis, Seligman, Mo., succeed to the garage business of O. A. Arnold.

H. Hindman, Wheaton, Mo., has bought the Duncan Motor Co.

J. F. Carter, Guymon, Okla., has sold his vulcanizing plant to W. O. Montgomery.

J. D. Van Hooser, Guthrie, Okla., is building a salesroom.

The Erickson-Priddy Tire Co., Ardmore, Okla., has been incorporated with a $12,000 capital stock by C. A. Erickson, S. E. Priddy, J. S. Twembly, E. J. Erickson, all of Ardmore.

The Magausen Garage, Ada, Okla., is being erected of brick, two stories.

Roy W. Levett, Bristow, Okla., will erect a brick and concrete garage.

E. E. Whitman, Bigheart, Okla., will erect a store and concrete garage.

R. W. Levett, Bristow, Okla., will erect a garage and repairshop.

The Dewar Hardware Co., Dewar, Okla., will install a garage on the first floor of their new building.

C. C. Walker, Okemah, Okla., will erect a two-story garage.

The Hughes Motor Sales Co., Oklahoma City, Okla., has been chartered with $6,000 capital stock by J. V. Scrivner, L. H. Adams, F. B. Hughes.

The Wilson Equipment & Service Co., Oklahoma City, Okla., was opened. The firm is composed of P. W. Wilson and C. W. McKinney.

The "Year Around" Garage, Atwood, Kan., has been opened for business, Thos. Constable and Paul Wendell, proprietors.

J. W. Lewis, Belleville, Kan., will erect a garage.

B. B. Jones, Columbus, Kan., has bought the Gleason Brothers Garage for a Ford station.

The Ever-Ready Battery Company Service Station, Concordia, Kan., has opened at 113 East Sixth Street.

Townsend & Millsay, Rockport, Mo., are opening the Patschke & Freihefer Garage under the name of Rockport Garage.

D. H. Perrin, Dresden, Kan., is erecting a garage.

Allie D. Martin, Hope, Kan., has sold his garage to C. B. Riggs and his son, T. B. Riggs.

Gilliam & Steele, Slater, Mo., will build a garage adjoining their main building.

Frank New and Chris Prather, Hooser, Kan., are building a garage.

A. R. Cogswell, Kirwin, Kan., has bought the Simon & Perkins Garage.

Gladish Bros, Higginsville, Mo., have let a contract for a repairshop addition to their garage and salesroom.

The Lee Motor Co., Chillicothe, Mo., has purchased the Brownfield Building, and has taken the agency for the Willys-Knight and Overland cars.

The Alcott Motor Car Co., Chillicothe, Mo., is having a building constructed to which its stock of Cadillac and Chalmers cars will be moved.

Managers of the Phillips Garage, Chillicothe, Mo., have ordered plans for a new building near the present location.

C. A. Feurt, Gallatin, Mo., has bought the Meade Motor Co., Gallatin.

The Kelley-Reppert Motor Co., Kansas City, Mo., Ford dealer, has leased quarters at 404-6 Admiral Boulevard. Two floors are to be added to the building at a cost of $18,000.

Hansel Compton, Independence, Mo., is opening an accessory store.

The Grant Motor Co., Kansas City, has leased the north half of the first floor and basement and all the second floor at 1624-26 Grand Avenue.

The Willard Battery Service Station, Washington, Kan., has opened.

Ceek & Foster, Oregon, Mo., will build a garage.

SOUTH

The Paige Sales Co., Memphis, has been incorporated by W. E. Woollen, J. Allen Creath and others, with a capitalization of $25,000.

The Eugene Polk Motor Co., Memphis, has been organized by Robert M. Foster and others with a capitalization of $10,000.

The Southern Auto & Supply Co., Chattanooga, has moved into a new fireproof building.

J. T. Blair Co., Nashville, has opened a Permalite battery service station at 617 Commerce Street.

The Shuler Rubber & Investment Co., New Orleans, has taken over the service station for the Prest-O-Lite Co.

R. G. Brown, New Orleans, has been made manager of the truck tire department of the Firestone agency. Brown was in the Firestone branch in Mexico City.

The Kaehler Motor Co., Richmond, Va., has been appointed distributer for Vim trucks in that city and trade territory.

MIDDLE WEST

Theodore Leicht, Green Bay, Wis., will build a garage and repairshop, to cost $5,000.

W. H. Stewart & Sons, Delavan, Wis., have reopened their garage and repairshop, which was badly damaged by fire several weeks ago. A new garage will be built in the spring.

John Reed, Burlington, Wis., has purchased a site for his new garage and repairshop on Washington Street. It will be 49 x 110 ft., and cost $6,000.

The Farwell Garage Co., 400 Farwell Avenue, Milwaukee, has taken the Saxon agency for Milwaukee county. A new garage and service station has been completed. F. A. Bowe is president.

M. J. Monson, Milwaukee, for seven years manager of the Milwaukee branch of the Buick Motor Co., has resigned to engage in business as a Buick dealer in Milwaukee. He is succeeded by H. P. Carter, until now sales manager of the Buick branch.

The Langlade Motor Car Co., Antigo, Wis., has been dissolved as a copartnership and the business will be continued by J. Schoblasky. F. Halferty retires.

R. H. Lee and J. R. Pike, Fond du Lac, Wis., have opened a tire store and vulcanizing shop at 208 South Main Street, and will feature the Dayton line of tires and tubes.

The Modern Motor Co., Twenty-fourth and State streets, Milwaukee, has started work on a one-story concrete and steel addition.

A. B. Christopherson, Cornell, Wis., sustained a loss of $5,000 by fire last week. Christopherson intends to rebuild.

The West Bend Motor Co., West Bend, Wis., Ford dealer, occupied its new garage and repairshop on March 1.

O. C. Harrington, Jr., Burlington, Wis., will open his new garage and service station in the former Wagner shop building on March 5. The business will be known as the Reogrande Garage. Harrington is Reo dealer.

Joseph DeBreaux, Brussels, Wis., Ford and Maxwell dealer, has purchased a site at Sturgeon Bay, Wis., and will build a garage.

The Prison City Garage, Waupun, Wis., has purchased from W. E. Rank and G. H. Boyd by Meiklejohn & Son, who will move their garage into the Rank-Boyd quarters about September 1. Another story will be added.

Joseph McNeely, Sturgeon Bay, Wis., has sold his tire business and repairshop to Alexander Johnson.

Dickoyer Bros., Sparta, Wis., consolidated their garage business with that of Guy & Son, and on February 15 moved into the Edwards Building, which has been the headquarters of the Guy firm.

George R. Rosenberg & Son, White Cloud, Mich., have purchased the garage of F. E. Hines.

G. E. Eckstein and William Lakie, Royal Oak, Mich., have been made Ford dealers and will conduct a service station.

The Auto Tire & Service Co., Alliance, Ohio, is the name of a new concern located at 38 South Linden Avenue.

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The New Crown Garage, Peoria, Ill., two stories in height and 120 x 171, is completed and will carry sixty employees. It will be one of the largest and most complete plants in Illinois. N. J. Moutier and his seven sons, constitute the Crown Company. In 1911, A. G., R. J. and J. L. Moutier, opened a small garage at 105 Main Street, Peoria, B. G., another brother, joined the firm in 1912, and the plant at 904-906 Main Street was purchased. Two more brothers, F. L. and W. A., were added. In 1915 R. N., the seventh brother, was added to the firm, and in 1916 the father was taken into partnership as financier. The firm operates a branch in Leroy, Ill., known as the "People's Garage," with J. L. Moutier as manager. It is believed that there is no other firm in the country where a father and seven sons are actively engaged. The brothers have divided the work and supervision so that each department is given close attention.

H. E. Brickner, Washington, Ill., has purchased the Washington Garage and will hereafter operate it. He was formerly employed as mechanic at garages in Metamora and Peoria.

Leo Smith, Paxton, Ill., has purchased the garage heretofore operated by Arthur Danielson, known as the "Iroquois," and will take possession on March 1.

The Herrick Automobile Supply Co., Champaign, Ill., has moved into a new building on West Park Avenue, and which was constructed especially for the housing of this firm. The former quarters were at Walnut and Taylor streets.

August Mielke, Paxton, Ill., has let the contract for a new garage, 50 x 120, fireproof construction, to be ready for occupancy May 1. A repair and storage business will be conducted and a line of supplies carried.

F. E. Avery & Son, Columbus, Ohio, formerly Packard dealer, has taken the agency for Detroit Electrics.

J. J. Aldrich, Columbus, Ohio, has moved his used car business from 1082 North High Street, to larger quarters at 170 North Fourth Street.

The Columbus Cadillac Co., Columbus, O., central Ohio distributer for the Cadillac, has moved from North Fourth Street to larger quarters at Sixth and Broad streets. Ralph G. Wilson is general manager.

Barry B. Cann, Columbus, O., has been made central Ohio distributer for Packard pleasure cars and trucks and has opened a salesroom and service station at 235 North Fourth Street. Associated with him is Albert E. Jones, formerly salesmanager for F. E. Avery & Son, former the Packard dealer.

The Auto Tire & Supply Co., Alliance, O., is the name of a new concern opened recently at 38 South Linden Avenue, to deal in tires and accessories.

The Markel-Maxwell Co., Columbus, O., formed to sell the Smith Form-a-Truck, has leased a storeroom at 173-175 North Fourth Street. Harley R. Markel will be in charge, and with him will be J. Francis Small, Chicago, district salesmanager for Ohio, Michigan, Pennsylvania, Indiana, Illinois and Wisconsin.

Clarence Rippel and Frank Sprengard, Cincinnati, partners in the R. and S. Auto Livery Company, 128 East Court Street, filed petition in Common Pleas Court asking that a receiver be appointed.

The Columbus Cadillac Co., Columbus, O., of which Ralph G. Wilson is general manager, has moved into new quarters at Sixth and Broad streets.

E. W. Johannes, Tigerton, Wis., has disposed of the repair department of his garage and will devote his attention to the sale of Allen cars.

The Rice Lake (Wis.) Motor Car Co. announces that its repair department now is in charge of John McFarland, Milwaukee, who will be assisted by two expert mechanics. The company is spending $5,000 for additional machinery and equipment, including lathes, shapers, drill presses, milling machines, etc. The company is Buick dealer.

Sande & Abendschein, Neenah, Wis., have broken ground for a new public garage and repair shop costing $8,000.

The Lando L. Albert Garage, Prospect and North Avenue, Milwaukee, Ford dealer, will build an additional story on the new service and sales building recently completed.

The Kreisel Motor Car Co., Spring Valley, Wis., Studebaker dealer, is establishing a branch garage and service station in New Richmond, Wis.

The Modern Garage Co., Waupaca, Wis., has purchased the Hanson building at Iola, Wis., for $5,000 and will spend from $12,000 to $15,000 in rebuilding and equipping it into a modern, fireproof garage and repairshop. It will be occupied shortly after March 1.

John F. Weber, 684 Seventy-third Avenue, West Allis, Wis., Buick dealer, has awarded contracts for the erection of an addition which will duplicate the present garage and service station. The addition will be 60 x 100 ft. and will be used principally to accommodate the storage department.

H. A. Kulas, 883 Windlake Avenue, Milwaukee, architect and builder, is in charge of plans and erection of a one-story motor car repairshop, 53 x 80 ft., on Lincoln, near Ninth Avenue.

J. W. Lodeman, 3401 Burleigh Street, Milwaukee, will build a two-story garage and repairshop, 50 x 110 ft., costing $10,000.

The Edgar F. Sanger Co., 156 Farwell Avenue, Milwaukee, Stearns-Knight and Hupmobile distributer, is considering the erection of a three-story garage and service building, 65 x 130, costing $40,000.

J. N. Burkle, Eagle River, Wis., Maxwell dealer, is installing a large steam vulcanizing and tire repair outfit.

The Agrimotor Engineering Co., LaCrosse, Wis., has been incorporated with a capital stock of $20,000 to deal in motor vehicles, trucks, tractors, and self-propelled agricultural implements of all kinds.

The Sawyer Garage, Sturgeon Bay, Wis., owned by David Machia, Edwin Hunt and Andrew Bursen, has incorporated its business under the same style. The capital stock is $10,000.

The Engel Garage, West Allis, Wis., has been purchased by Dr. W. J. Maag, Wauwatosa, Wis., and Otto Nelson, Sturgeon Bay, Wis., who have formed a partnership as Nelson & Maag. Nelson will be manager.

The Chalmers-Wisconsin Co., 215 Wisconsin Street, Milwaukee, Wis., distributer of Chalmers, announces the appointment of Royal H. Case as general manager. Mr. Case has been associated with the Jesse A. Smith Motor Car Co., Hudson distributer in Milwaukee, for several years.

The Ludwig Motor Car Co., Milwaukee, Chevrolet and Acme truck dealer, has opened salesroom, service station and garage at 1825 Center Street, Milwaukee.

Holmes & Co., 495 Broadway, Milwaukee, one of the local Ford distributers, has appointed Walter Lochen director of sales, and F. H. Applegate director of service. Mr. Lochen was formerly associated with the sales force of the Milwaukee Ford plant.

The Saxon Reynolds Co., Mason and Milwaukee Streets, Milwaukee, state distributer of the Saxon, announces the appointment of F. E. Mack as general sales manager. He formerly was with the National Carbon Co.

The Rice Lake Motor Car Co., Rice Lake, Wis., is now owned by V. N. Scott and M. R. Paradis, who have purchased the interest of R. A. Beaudette.

The Chair City Vulcanizing Shop, Sheboygan, Wis., organized by H. J. Schwalbe and A. F. Laack, has opened a tire and repairshop at 1219 North Eighth Street.

The G. A. Gullikson Motor Co., Stevens Point, Wis., on Feb. 15, took occupancy of its new $25,000 garage at Strongs Avenue and West Ellis Street.

The Nu-Way Puncture Cure Co., Green Bay, Wis., has moved from 403 West Walnut Street to more commodious quarters at 224 Pine Street and is installing new equipment.

The Menasha Motor Car Co., Menasha, Wis., has been sold by W. A. Redner to George Pierce and Andrew Borenz, who took possession February 15. Mr. Borenz also owns the Hotel Menasha Taxi Line.

Kuester Bros., West Bend, Wis., have installed a large motor-generator set for the care of electric vehicles and storage batteries.

John Klaus, Sturgeon Bay, Wis., has severed his connection with the McNeely Vulcanizing Shop of that city and opened a similar establishment of his own in the Woolworth building.

The Lohr Auto Co., Hartford, Wis., has incorporated its business under the same style and will enlarge its garage and repairshop. The owners are C. H. Lohr, Louis Frederickson and Edward Carey.

EAST

Empire Tire & Rubber Co., Philadelphia branch, have moved to 810 North Broad Street, where they will occupy a four-story building.

Edinger & Robb, Philadelphia, are building a two-story brick garage and office, 35 x 201 ft., at Sixtieth and Larchwood avenues, to cost $12,000.

Strogonoff-Godfrey Company, Inc., 103 State Street., Schenectady, N. Y., has just been organized with a capital stock of $75,000, to distribute cars, trucks, motorcycles, tractors and farm implements. Branch agencies are being established.

The Kelly Field Co., New York, selling agents for the Lee Tire & Rubber Co., of Conshohocken, Pa., are moving their offices from 1851 Broadway to the home offices and factory at Conshohocken.

The Prest-O-Lite Co., Inc., Boston, has moved from 16 Columbus Avenue, to 709 Beacon Street.

Baltimore.—The past few weeks have brought about a number of changes in the local motor car field and several companies will shortly move into larger and more commodious quarters.

The National Building Supply Co., one of the oldest mercantile houses in the city, having been established in 1851, has become state distributer for Lippard-Stewart trucks. Thomas P. Kelly, secretary of the company, will be general manager of the truck division.

The Reo Maryland Co., which for the past year has been distributer for Reo trucks and pleasure cars, is now distributer for Republic trucks.

The Howell Motor Co., which has been Apperson and Wilcox-Trux distributer, has taken over the Reo line. The firm has leased the showroom in the new Automobile Club building, Cathedral and Mt. Royal Avenues. This showroom has 3,200 ft. of floor space. The company will continue its service station at 910 Bolton Street.

The Motors Co., G. Raymond Eisenhauer, 23 East North Avenue, which handled the Republic line of trucks, are now handling the Atlas trucks.

The Murray Motor Sales Co., 1201 North Charles Street, has been organized to handle the new Murray Eight. J. Radcliff Murray is president and H. P. Taylor general manager.

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The King Motor Sales Co., distributer of the King Eight, J. Stewart Smith, will within the coming week move into new quarters at Charles and Lanvale Streets, opposite Union Station.

Nelson Miller, Harrisburg, engaged in the automobile draying business, has opened a garage and salesroom at 26 North Duke Street. The building was formerly occupied by the Anderson Motor Car Co.

The Overland-Harrisburg Co., 212 North Second Street, Harrisburg, handling the Overland car, will open a downtown used car salesroom, which is to be located at 212 North Second Street.

The Zimmerman Auto Co., Linden and Walnut Streets, Harrisburg, is making arrangements to move into new quarters on Seventeenth Street.

COAST

Biddison & McFarland, Tacoma, are now established in the Motor Building, with their auto laundry and give day and night service.

G. H. Ovington, Seattle, has been made manager of Chanslor & Lyon, accessory dealers, the change being made owing to the death of William A. Avery.

Swartz & Bridgeman, Seattle, Buick specialists, have opened an expert automobile repair shop at 310-12 East Pike Street.

A. N. Ferguson & Co., Portland, used car dealers, is a new firm composed of A. N. Ferguson, O. C. Durell.

The Coffman Co., Spokane, has been made Ford dealer and opened service station and salesrooms at 910 Howard Street.

Pete James, Spokane, has opened a garage at 1506 Pacific Avenue, and will do a general garage business.

Waterhouse-Sands Motors Co., Seattle, has been appointed distributer for the Marmon in Western Washington.

Knutson Brothers, Burlington, Wash., have been made distributers of Garford trucks.

F. U. Bliss and **C. H. Wismolek**, Seattle, have become associated to handle the retail sales of the Hendricks truck.

Western Motor Sales Co., Seattle, has opened a retail showroom on East Pike Street, for the display of the Western truck attachment.

Tacoma, Feb. 12—To house all units of automobile service under one roof with no firms conflicting in the work they do is the scheme that has been put into practice by M. W. Morris, manager of the new Motor Building. The building formerly housed the Savoy Theater and after extensive remodeling at a cost of $30,000, makes an ideal motor home with four floors and giving a working space of 36,000 sq. ft.

F. W. Foulkes, Jr., handling the Harroun and Oakland, will be the new car dealer. O. J. Engen will be in charge of the rebuilt and used car department for the Tacoma Motor Co.; L. P. Harmon and C. R. Wilson will establish a machine shop in the building. Conners & McFarland will conduct a modern automobile laundry. The Tacoma Radiator & Fender Works will handle its end of the work in the building and Little & Kennedy will use the rear end of the third floor for its overflow stock of used cars.

Each firm will have an office and Morris will have a central office from whence he will direct customers to the part of the plant where they wish service.

H. W. Yenawine, Seattle, of Yenawine & Seibert, has purchased the stock held by Mr. Seibert. The firm has built up a large business as body designers.

NORTHWEST

John Rundt, Burr, Neb., has bought the Burr Garage from Kahl & Henning.

C. G. Gyllings, Osceola, Neb., has sold his garage business to Theo F. Jacobs and William Kearney, both of David City, Neb.

Carl Murner, Bloomfield, Neb., has disposed of his garage at Wausa, Neb., and will move to Pipestone, Minn.

Joseph Voss and **Anton Kramer**, Butte, Neb., have opened a garage.

George Brown and **John Bates**, Bloomington, Neb., have opened a garage and auto livery.

Henry Anderson and **John Veberg**, Hordville, Neb., have organized the Ford Auto Co., and opened a garage and repairshop.

C. F. Tangeman, Louisville, Neb., has bought a garage at Gretna, Neb.

Helpbringer & Co., Crawford, Neb., have leased the Eversull Garage on South Second Street.

John Monnich, Cedar Bluffs, Neb., has opened a garage.

C. J. Carley, Chadron, Neb., has sold his interest in the Chadron Garage to J. P. Spracklen.

E. G. Belden, Fremont, Neb., has leased the Monnich Garage.

C. J. Marick, Franklin, Neb., has bought a building and opened a garage.

Louis J. Evert, Howells, Neb., has bought out his partner in the Howell Motor Co.

Julius J. Novak, Loma, Neb., has opened a new garage.

The Shore & Beach Auto Co., Lincoln, Neb., has been incorporated with capital stock of $50,000. The incorporators are C. H. Shore, John J. Hedges and W. S. Beach.

Herman Zander, Stanton, Neb., has bought out the interests of his partners in the Zander Bros. machine and repairshop.

John Osterlog, Thayer, Neb., has purchased the Thayer Garage and taken possession.

Michael Fox and **William Chamberlain**, Malvern, Iowa, have bought out the Van Sant Garage at Glenwood, Iowa.

C. V. Gilbert, Broadwater, Neb., has bought a half interest in the Broadwater Garage.

John Shaw, Edgar, Neb., has bought a building and opened a new garage.

Charles Miller, Genoa, Neb., has bought the Goodwin Garage from Caspar Rasmussen.

Dodge Brothers, Morse Bluff, Neb., have bought the Fishler & Zakovec garage.

Arch Grantham, Obert, Neb., has bought out the H. L. Anderson garage.

Weaver & Co., Coin, Iowa, have opened a new garage.

E. N. Reece, Surprise, Neb., has opened a new garage.

Anderson Bros., Winside, Neb., have bought the Gobler garage and repairshop.

The T. G. Northwall Co., Omaha, Neb., will move soon from its present quarters into the new Allen Building at Tenth and Farnam Streets. Here the firm will have six stories and basement, with three times its present space.

The Western Automobile Supply Co., Omaha, Neb., has moved into new quarters at 1918 Farnum Street, greatly increasing its display space and attractiveness of location.

The Electrical Equipment Service Co., Omaha, Neb., is a new firm on Auto Row, conducting a general garage and repairshop business.

I. B. Friesen, Fairbury, Neb., has bought a new garage building.

Charles Councilman, Superior, Neb., has bought the Motor Inn.

A. J. Jensen, Ames, Neb., has opened a new garage and repairshop.

Jacobs & Kearney, Osceola, Neb., have bought out the garage business of C. G. Gyling.

William Taylor, Alvo, Neb., has bought the Alvo garage.

J. R. Sage, Ainsworth, Neb., has bought the interest of his partner in the Ainsworth garage.

Grant Blinn, Stuart, Neb., has purchased the interest of his partner in the Blinn & James Garage.

Earl Boyer and **Richard Stanaway**, Anamosa, Iowa, have bought the garage formerly operated by J. F. Hart.

Felix Joswich, St. Paul, Ford dealer, has moved his service station from 109 West Third Street to 352 Market Street.

Some Signs For a Busy Garage



These are some of the signs in the garage of the Republic Rubber Co., Youngstown, O., where safety first is carried to the limit. These signs are easily duplicated and may help make your garage safer

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The Omaha show was well arranged and there was little overcrowding. Each exhibit possessed a certain marked individuality

Lower Priced Cars Going Well in Nebraska

Per Capita Wealth Is $2000 and Everybody Rides

OMAHA, Mar. 1—There is just one thing the State of Nebraska needs, and needs badly. The State has great wealth. It has immense resources as yet scarcely touched. It has tremendous possibilities in a commercial sense. It needs a State bureau of publicity.

In area Nebraska is thirteenth in the Union. In crop percentage last year it stood fifth, being led by New Hampshire, Massachusetts, Connecticut and West Virginia. In total crops produced in 1916 it stands fourth, being led only by Texas, Iowa and Illinois. Its crop percentage last year was 112.7. Its population is approximately 1,250,000.

The total value of thirteen principal crops of Nebraska last year was $343,655,000. Of this about one-third was corn and one-fourth wheat. Nebraska live stock produced last year numbered 5,331,010 head, valued at $244,573,708. Bank deposits in the State total $340,717,000—an average per capita of $286.82. These bank deposits have increased $155,171,000 since 1910. Building and loan association resources in the State are $47,917,847.

Nebraska's per capita wealth is slightly more than $2,000.

A Car To 12 Persons

Automobiles owned in the State number 100,534. A year ago the number was 59,140. The total gain in car ownership during 1916, being 41,394, is more than the total number of cars owned in the State in 1914. Comparative figures from other States where the total registration is above 100,000 cars show that in the number of cars per capita Nebraska is headed only by the State of Iowa. In Iowa the population per car is 11.3, and in Nebraska 12.37.

From $14,263,714 in motor car trade in Nebraska in 1915 to a business of $25,660,134 is a pretty big increase, and from $4,025,059 to $4,347,000 is not so bad, yet these figures correspond in a startling degree with estimates made just a year ago in the Motor World, when it was announced that the total combined motor car and accessory trade here would reach $30,000,000 in 1916. It was also stated then that 30,000 motor car sales during 1916 were anticipated. The exact number is 41,394. This brings to light an interesting fact.

That is, that the motor cars sold in Nebraska in 1916 are of the less expensive types, and this in turn indicates that those somewhat lower down in the financial scale are buying motor cars. Farmers are buying largely, and particularly is this true in the western and northern parts of the State, where light cars are more in demand, owing in a great degree to the nature of the coun-

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try, which is rolling and often sandy.

But in the cities the same condition holds, for different reasons. People of fairly modest means, as the term is considered in Nebraska, are buying motor cars. Almost every small business man has his car, practically every retired farmer who is now living in the city has one, mechanics, tradesmen, policemen, even newspaper reporters are riding in their own cars. But the conservatism which has amassed the wealth which Nebraska boasts to-day, yet which has kept the State from being advertised as it should be, makes the tendency lean toward the less expensive car.

This does not mean that there is no market here for the high-priced car. Far from it. The dealers and distributers of high-grade cars are doing big business. They are flourishing. The Pierce-Arrow, the Packard, the Cadillac, the Stutz, all are common enough sights on the streets of Omaha and of other fair-sized cities of the State. But the fact is that when you see one of these, you know by that very sight that the owner is able to support a flock of them if he so desired.

Big Field for Trucks

Trucks are largely used, but there is still a great field for this business. The larger industries in Omaha are about half motorized, department stores almost wholly so, and small dealers largely so. Farmers are taking to light trucks somewhat, and to heavy trucks in smaller degree. It would appear that good work could be done by live dealers in the rural field in trucks, as most of those now in use are for delivery of truck produce to city markets from districts lying relatively close in.

The tractor situation is unique. Although the business in this territory is still virtually in its infancy, originating, so to speak, with the first of the Fremont tractor shows some 3 years ago, it is an exceedingly lusty infant. And it is being cultivated almost exclusively by the farm implement trade. Motor car dealers and distributers appear to be so busy handling pleasure cars or commercial vehicles, according to their respective lines, that they have neither the time nor the inclination to take on tractors. As a consequence the implement dealers are fast getting a stranglehold on this business, which will require valiant efforts on the part of the motor car dealers to break if they take the notion.

Tractor Sales Are Good

As an example of the growth of the tractor trade here it may be cited that there is a tractor school being conducted in connection with the automobile show by the International Harvester Co. There are in Omaha more than 200 farmers who say they came for the express purpose of attending this school, and they have been buying tractors at a lively rate since they arrived. All that is needed to sell tractors, it would seem, is to tell the farmers what they are for and to prove in how great a degree they outdistance old Dobbin in filling the farmer's needs. The farmers can buy them.

Omaha, the principal city of the State, has a population in round numbers of 200,000. It is the second live stock market of the world. It is the second primary corn market of the world. It is the first feeder sheep market, the first range horse market and the second sheep market of the world.

$4,000,000 for Accessories

Omaha's automobile trade in 1916 amounted to $30,007,134. Of this $4,347,000 was accessory business. Its area of distribution covers all of Nebraska and Wyoming, half of South Dakota, one-third of Iowa, one-fourth of Kansas and corners of Missouri and Colorado.

During the past year no less than sixty-seven new industries have located in this city, and more are coming in. The manufactures of Omaha last year amounted to $268,057,715, an increase of 25 per cent over 1915. This means a factory output of $1,340 for every man, woman and child in the city.

With a total of fourteen railroads running into Omaha and Council Bluffs, just across the Missouri, problems of distribution are certainly simpler than those now confronting the East.

Omaha's jobbing trade of last year amounted to $183,759,493, an increase of 20 per cent over 1915. Her bank clearings passed the billion dollar mark, reaching the figure of $1,279,158,591, an increase of 25 per cent over the previous year. Her packing house industry amounted to $149,768,860. Seventy per cent of all livestock received in this great market is packed here. Her smelter output for the year was $46,-019,279. New buildings erected during the year amounted to $7,226,107.

The thrift of Omaha and of the State at large may well be shown by savings deposits in Omaha banks. There are at present 78,559 savings accounts amounting to over $500 each in Omaha banks, and the total savings account figure is $39,843,000. In other words, one out of every three persons in this city has over $500 in bank. Is it to be wondered that one out of every twelve people in Nebraska owns a motor car?

Of dealers and distributers in this territory, there are about 5000. In 1915 there were approximately 1500. Of these, there are about 3000 in Nebraska, 1600 in western Iowa and 400 in South Dakota.

Deliveries Are Prompt

While freight car shortage has worried the motor car trade considerably in this territory, the situation would appear not so acute as may have been imagined from the plaints of dealers and distributers anxious to keep cars moving. Omaha men seem to be making deliveries with fair promptness, although some still complain that they are further hampered in a very great measure by shortage of factory output. In fact, of the two evils, the latter would seem to be the greater.

Much greater distribution is carried on in western Iowa than would be imagined. This is because it is cheaper in the matter of freight rates to ship from the factories to Omaha and then back to many Iowa dealers than to ship directly to the dealers there. The argument involves the fine points of the "long and short haul" provisions of freight rates. But from Omaha to thirty-three of the ninety-nine counties of Iowa shipments may be made without any switching, i.e., by direct route. And to sixty-three of the remaining counties shipments are possible with but one switch. So that there remain but three counties of all Iowa which are not readily accessible to Omaha distributers.

It was predicted a year ago that 1916 would see an increase of nearly 50 per cent in the automobile trade. This prediction has been amply fulfilled. It is now estimated that again this year business will be half as great again as in 1916. The estimate is conservative. It is the lowest estimate which has been made by any of the many sources consulted. This has been a story of fact, not of forced prosperity. The verdict of its truth is confidently left to the year 1917.

Nebraska Wants Touring Cars

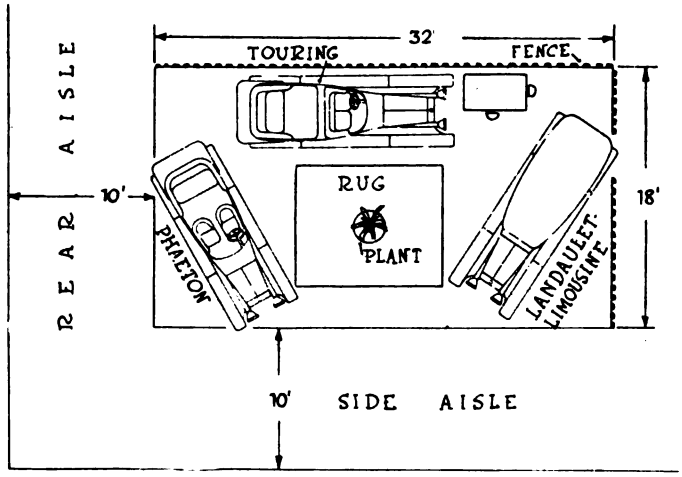
And It Is Impossible To Pick a Live Prospect By Appearance

OMAHA, March 3—The Omaha show is the largest small show of the season. If the public could have had its way, little would have been left on the closing night except the decorations. Prosperity, good weather, and show week combined in closing sales, and the purchasers want to take their cars direct from exhibits and drive them home.

This is the twelfth annual show held by the Omaha Automobile Trade Association in the Auditorium. In spite of the fact that 10,500 sq. ft. additional space is provided by a temporary annex, many exhibitors were turned away, and it was impossible to have an accessory show at all.

The total number of cars, trucks and tractors was 218. Of this 26 were closed cars, 80 touring cars, 35 roadsters, 17 chassis, 7 electrics, 50 trucks and 3 tractors. Though there are 80 different makes of gasoline cars, and 3 different makes of electrics, there are only 45 car exhibitors.

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This is Reim's exhibit. Note the three-quarter view of the phaeton at the left, which is the feature. By pulling the cars in at the front the rigid appearance was eliminated.

The majority of the dealers here handle two, and often three makes of cars, in order to reach every class, for every class are car purchasers.

The statistics show a high proportion of touring cars. This is because the dealers are showing the cars that sell, and not trying to display their entire line. Nebraskans want touring cars. If they cannot fill their cars with their own family, there is always someone ready to go, and the purchaser wants the room to take them.

In spite of the fact that the Auditorium does not possess marked decorative possibilities, the decorative scheme was good. It was styled "Hawaiian," but, at any rate, the color combination was foliage green and white—green imitation masonry side walls and white canopied ceiling. Additional color was supplied by palms, ferns and potted plants.

Little Overcrowding

Each exhibit possessed a certain marked individuality, as though the dealer put some thought into the display. Few of the exhibits were overcrowded and nearly all had rugs, extra plants, tables and chairs. No doubt this individuality was increased by the fact that a picket fence separated the exhibits, but careful arrangement by the dealer himself usually characterizes the Western show.

An example of good arrangement is that of Geo. F. Reim, who distributes Cadillacs. Though he has a space measuring approximately 18 x 32, only three cars are displayed. The phaeton, a most popular model, is at the left, slightly inclined towards the front center. In this position an unobstructed view of the car may be obtained from any position except the right rear. The touring car, being the next popular model, is at the rear of the exhibit, parallel to the dividing picket fence. A full side view may be obtained, and that is the most important one in this case. At the right of the exhibit, likewise inclined slightly towards the center, is the landaulet limousine.

Besides displaying the featured car to advantage, this arrangement makes the exhibit a unit, and shows good merchandising sense.

Typical of Western originality is the temporary annex at the rear of the Auditorium. Last year there was not enough room for both the car and truck show. So this year the dealers obtained permission from the city council to use one of the city streets. In the street, behind and against the Auditorium, they erected a wooden building 150 x 70 ft. It was heated by three large stoves, and though not exceptionally attractive, was warm, displayed the trucks and released 10,500 sq. ft. for the car show. The cost of this building was about $2,000. Next year an annex three times as large will be put up.

A trip through the show at any time would show sales in all stages—interest, desire and closing. Usually the program is something like this:

In the morning the prospect comes with a preference for three or four cars, and spends the morning circulating between his chosen exhibits. During that time the salesman lets the prospect play, and does not unduly attempt to push the sale. At noon the prospect talked the cars over, either with his family or friends.

On the return of the prospect to the show in the afternoon the salesman gets busy, locates the prospect and pushes the sale. And he has to sell the car.

The purchaser here buys the car on specifications. He wants to know the mechanical construction from radiator to rear axle. Many of the prospects are farmers, and care for their own cars, have owned cars before, and hence are carwise. General statements do not count. General appearance, though important, must be backed up by perfection in detail. The prospect has to be sold on the car, and smooth talk is secondary to giving facts and figures.

Picking Live Prospects

It is impossible to pick out a live prospect by appearance alone here. A metropolitan salesman would soon find that he was spending his time on the bank clerk instead of the depositor if that were done. The man from the farm may have a flannel shirt and a 1912 overcoat, but he usually has a bank roll, and is here to buy a car. And his looks do not say whether it is to be a $350 car or an $8,000 car.

In detail the show was well managed. There were no passes except to exhibitors, press and dealers. Near the entrance the Hotel Men's Association had an office, and out-of-town visitors could obtain accommodations to suit their needs in a short time. The exhibits were kept clean and orderly. The best evidence of good management is the fact that there is no management in evidence.

Wyoming Valley Wealth *Revealed by* Wilkes-Barre Show

WILKES-BARRE, PA., Mar. 5—The show held in this city last week did more to demonstrate the wealth of the surrounding region than anything else. The characteristic attendance at shows in most other cities of the size as this was conspicuously absent—there are comparatively few farmers here. Instead of farmers made wealthy through manipulating the market, there were hundreds of coal operators and men connected with these operations, for be it remembered, the Wyoming Valley, picturesque and rich in its resources, produces between 40 and 50 per cent of all the anthracite or hard coal mined in the United States.

Wilkes-Barre is the center of the anthracite fields and owes its wealth and prosperity to its location in the heart of one of the richest anthracite fields in the world. The value of coal produced is greater each year than all the gold produced in the country at the same time. During 1916 Luzerne County produced 35,266,086 tons of anthracite. This is almost half of the production in the entire State.

The valley is also prominent for its silk manufactories. There are situated here a large number of silk mills. The number of employees and the amount of production easily make it the center of the country's silk industry. The valley is also active in the manufacture of copper wire, locomotives, stoves, hosiery and in iron foundries. The Sheldon Axle & Spring Co. is one of the largest employers of labor, employing 2500 men.

The population of Luzerne County is 400,000, of which 80,000 are in this city. Compared with its size the population of this city is greatly congested. Its growth has been so rapid because of the industrial activity that the local Chamber of Commerce has gone almost insane with the fever of annexation. If it accomplishes nothing else it will show the aggressive spirit of the city. An effort is being made to annex the 19 boroughs and townships surrounding the city. This will increase the population 300 per cent.

Other centers of population are Hazleton and Pittston, also active in the coal industry. In both of these towns this is the principal occupation, supplying the needs of almost 100,000 people.

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A Department of Better Mechanics

No. 13

OIL LEVEL ADJUSTMENTS ON THE PAIGE 38 AND 39

AS no two persons drive alike, the oil level adjustments on different engines of the same make often vary. Some engines will over-oil, some under-oil, depending on the average speed the car is driven. This cannot be determined until the car has seen service.

The adjustment described herewith applies no more to the Paige than to any car employing the same lubrication principle, on which it may be used with equal facility.

INDICATIONS OF OVER-OILING

This is the most common trouble. It is commonly evidenced by:

1. Continuous smoky exhaust.
2. Fouled plugs.
3. Excess carbon formation.

Outline of Method of Adjustment

Over-oiling is caused by the oil dippers on the connecting rods dipping too deep into the oil troughs, and the oil troughs themselves holding too much oil.

By measurement, the dip of the dippers is set so that each dips 1/16 in. into the oil in its oil trough. The oil level is maintained by drilling extra return passages through the oil pan.

HOW TO DO THE JOB

1. Remove the oil plug in the middle of the base and drain out the oil.

Previous Articles

Subject	No.	Date of Issue
Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac — Cam and fan-shaft driving chains	2	Dec. 20
Maxwell—Rear axle repairs	3	Dec. 27
Chevrolet—Clutch repairs	4	Jan. 3
Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Buick—Rear axle adjustment	8	Jan. 31
Chalmers — Valve and ignition timing	9	Feb. 7
Dodge—Brake adjustment—Push-rod care	10	Feb. 14
Studebaker—Torque arm repair—Push-rod care	11	Feb. 21
Cole—Adjustments of Motor	12	Feb. 28

2. Using a socket wrench, remove the retaining bolts for the base.

3. Remove the base and clean it thoroughly.

The Dip Gage

A dip gage must be made to measure the distance the dip on the connecting rods extends into the oil trough. This is shown in Fig. 1. It is ¼-in. rod, bent so that it may be securely held on to the base flanges, and carrying a ⅛-in. fine threaded screw in the center of the cross arm.

To Measure the Dip

1. Place the gage on the crank base flange, as shown in Fig. 2, over connecting rod dip No. 1. The gasket or packing must be between the gage and the flange.

2. Turn the crank until dip No. 1 comes to the lowest point.

3. Adjust the central screw until it just touches the tip of the dip. This is shown in Fig. 2.

4. Place the gage on a flat surface, a face plate, preferably, and carefully measure the distance (A). This is the distance that the dipper dips into the base.

5. Place a straight edge across the top of the base, above the oil trough of No. 1 dip. This is shown in Fig. 3.

6. Accurately measure the distance (B). This is the distance from the top of the base down to the level of the oil in the trough.

7. The distance (A) should be 1/16 in. greater than the distance (B). This will assure the dip dipping 1/16 in. into the oil.

8. Set the gage so that the distance (A) is 1/16 in. greater than (B).

9. Bend the oil dip until it comes to the new setting of the gage.

10. Do this with each of the oil dips in exactly the same manner.

By this the first condition of adjustment is satisfied, namely, that the dips go down 1/16 in. into the oil trough.

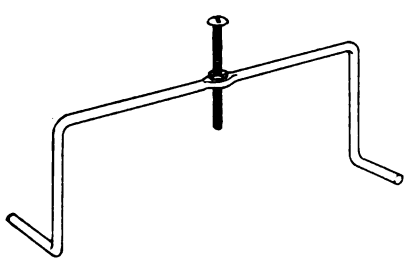


Fig. 1—The dip gauge is a simple instrument for showing the exact location of the end of the connecting-rod dipper

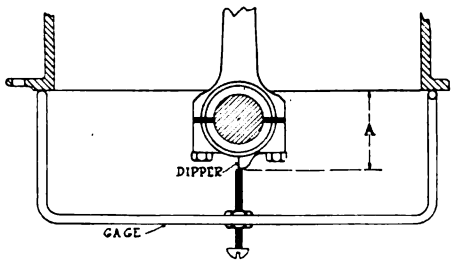


Fig. 2—The dip gauge in use showing how it is held against the upper half of the crankcase

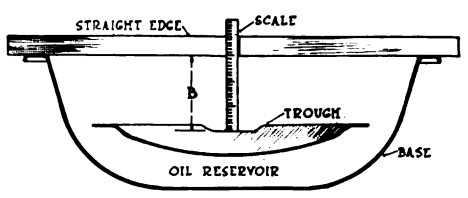


Fig. 3—The depth of the trough is measured as this is just as important as having the dip the right length

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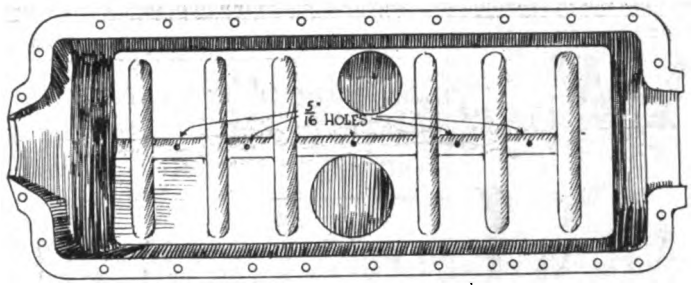


Fig. 4—Where oil holes are drilled

The next step is to keep the oil level constant.

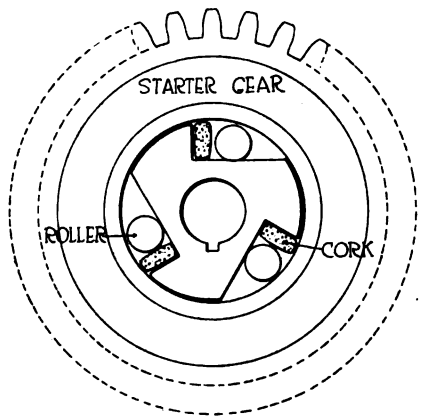
TO KEEP THE OIL LEVEL CONSTANT

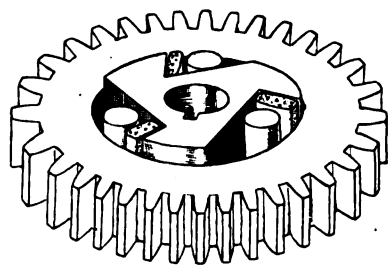
1. Place the base on the bench.
2. Spot center marks in the lengthwise oil groove, as shown in Fig. 4.
3. With a breast drill, drill 5/16 in. holes in each of these centerpunched marks.

Inasmuch as the base is off, it is advisable to see that all the bearings are tight. If not, make necessary adjustments. The plunger pump and strainer may readily be inspected and cleaned.

THE ASSEMBLY

1. Shellac the gasket to either the crankcase or base side, but not to both.
2. *Fill the oil troughs of the base with oil. This assures the cranks getting oil from the first turn.*
3. Replace the base. Do not tighten any one bolt way up until all are drawn snug. The base is thereby pulled evenly up to the gasket on the crankcase.
4. Refill the oil reservoir with 1½ gals. cylinder oil.
5. The car should be given a stiff road test to make certain that all parts are being properly oiled.





Roller starter clutch used on Hupmobile 32 showing how cork is inserted

A COMPLETE SHOP CARD

SHOP CARD

JOB Nº 8250 Date

NAME OF OWNER

CAR No.

REPAIRS WANTED

MATERIAL AND PARTS

NO.

Owner positively must sign this card before car is delivered to him in order to prevent any misunderstanding.

EMPLOYEE'S NAME	DATE	TIME

TOTAL

This job has been tested and left my hands O. K.

Foreman's Signature

The above material is used on car and time assumed in making repairs is correct and charged hereto.

Owner's Signature

Front and reverse sides of complete shop card. The top of the front side provides for the owner's name, address and repairs desired. The lower part gives a record of materials and parts used. The reverse side is a record of mechanic's time on the job. Provision is made for the approval of the work by the foreman and by the owner

Starting Motor Clutch Repair

HUPMOBILE 32

After extended use, the starting clutch occasionally slips, or refuses to grab. This is usually caused by wear in the steel cylinders of the clutch dog. By the following method the same cylinders may be used, and the clutch placed in satisfactory operation without the necessity of installing any new parts.

To do this it is only necessary to remove the starting clutch and gear, clean the parts and again assemble them. After the assembly, strips of cork, about ⅛ in. thick, are inserted at the rear end of the clutch cylinder recess, in the manner shown in Fig. 1. These hold the cylinders out, and cause them to engage properly.

Accessory Demonstration Show

CHICAGO, March 5—Something new in accessory shows is to be put on by Rothschild & Co., one of Chicago's big department stores. It will stage an exhibit with practically every accessory shown in actual use. There will be 125 demonstrators, and each booth is to be in charge of a factory representative.

Engine or Motor

WHICH is correct according to the Society of Automobile Engineers?

Would you like to know the correct name for EVERY part of a car?

The Society of Automobile Engineers has issued a pamphlet taken from the report of the Nomenclature Division of the Standards Committee which gives all these names.

A limited number of pamphlets are available. Until the supply is exhausted we can supply them, free, if you will

ASK FOR ONE

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THE LAW

As it applies to

DEALERS, GARAGEMEN, REPAIRMEN

The editor of this department is glad to answer questions. Always send copies of contracts, notes, etc., to which you refer.

By Geo. F. Kaiser

BE CAREFUL

When Towing a Car

NEGLIGENCE on the part of a garage employe in towing another automobile is considered in a recent New York case.

Suit was brought by a man who was injured while passing a garage. As the man approached the garage entrance he noticed an automobile owned by the garage crossing the sidewalk to enter, and he also noticed a second automobile about 12 feet back of the first one. The man stopped long enough to permit the first automobile to pass and then attempted to walk between the two cars but was tripped by a tow rope, which was about 18 inches above the sidewalk, and was injured.

The court decided that the garageman was liable for the accident and that the man could recover damages for his injuries, saying:

"The basis of this contention is that it could not have been reasonably anticipated by the chauffeur that the plaintiff would cross immediately behind the first automobile and trip over the tow line under the circumstances existing.

Would Be Anticipated

"It seems to me that this is just what any person of ordinary intelligence would have anticipated. The cars were not going fast, and it is a most common thing for a pedestrian to pass in front of on-coming automobiles proceeding slowly at crossings where there is as much of a margin of safety as 12 feet.

"Particularly is this so where, as at the entrance to garages and to many apartment houses and hotels, automobiles are permitted to cross the sidewalk.

"With the tens of thousands of cars that now swarm the city streets, it is second nature for a pedestrian to proceed on his way immediately after a blockading automobile has passed, and he has a right to do so unless halted by traffic rules or by the danger of a swiftly approaching vehicle.

"Otherwise in a stream of slowly moving traffic pedestrians would never get across the streets at all. So it cannot be said that the chauffeur could not reasonably anticipate that the plaintiff and his companion who were halted on the sidewalk by the first automobile would not immediately proceed on their way once it had passed, although another automobile was approaching slowly 12 feet away.

"That plaintiff and his companion might fail to see the tow rope in the dark certainly might be reasonably anticipated. And if they failed to see the tow rope the almost inevitable result would be that they would trip over it and fall.

"A rope stretched across a city sidewalk nearly 2 feet above the ground is a dangerous obstruction. That it was the duty of the chauffeur as he passed the plaintiff to call out and give some warning of the presence of the tow line at a time of night that it was so dark that it could not readily be seen is too plain to require further discussion." —Rapetti vs. Peugot, 162 N. S. 133.

Lights on Vehicles

Editor Motor World: Will appreciate any information you can send me in regard to light regulations in New York and New Jersey.—Redgate Bros., South Orange Repairshop, South Orange, N. J.

The New Jersey motor vehicle act provides that 30 minutes after sunset until 30 minutes before sunrise motor vehicles shall carry two lighted lamps showing white lights visible 250 feet and a red light in the rear. The New Jersey law provides that no light rays are to be at a greater height than 4½ feet from the road, unless the lamps have some no-glare device inoperative from the dash.

In New York there is no State provision governing glaring headlights, but two white lights in front and one red light in the rear are required. In some of the cities, such as New York City, glaring headlights are prohibited. You may procure a copy of the New York or the New Jersey motor vehicle act by writing to the Secretary of State at either Albany or Trenton.

Sell the Car

Editor Motor World: We have a car on storage for the past 8 months and have written the owner several letters to which he pays no attention. We are not positive that the man to whom we have written is the real owner, but the car was left for a few days storage and the party leaving it never returned. The man we have written to is the supposed owner according to registration number. Please let us know what we can do to obtain our money.—Flushing Auto Garage, Inc., Flushing, L. I.

The present New York lien law provides that garage keepers have a lien on motor cars for storage, repairs, gasoline and other supplies furnished with the consent of the owner whether a conditional vendee or a mortgagor in possession and may detain the car if in their possession until charges are paid.

Must Give Notice

Of course, if you knew who the owner of the car was you could give him notice and then sell the car under your claim of lien. Not being sure of the owner and not knowing the name of the person who left the car with you, I think you will be justified in selling the property if you give notice to the person who has the license number assigned to the car.

In order to sell the property you must either serve a notice on the owner in the county where the lien arose or mail it to him at his last known place of residence or post office address and give the same notice to the persons, if any, who have advised you that they have an interest in the property.

Specify Charges

The notice must state the nature of the debt or the agreement under which the lien arose, with an itemized statement of the claim and the time when due; a brief description of the personal property against which the lien exists; the estimated value of such property; the amount of such lien at the date of such notice. It must also require the owner to pay the amount of the lien on a day not less than 10 days from the service of the notice, and shall state when and where the property will be sold, if the amount is not so paid.

The lienor is entitled to be paid for caring for the property between the time the notice is given and the property is sold, if the agreement provides for that and the notice contains a statement that that amount is likewise demanded.

A notice of sale must be published once a week for two consecutive weeks in a newspaper published in the town or city where such sale is to be held, and the sale shall be held not less than 15 days from the first publication. If there is no newspaper, notice shall be posted at least 10 days before the sale and in not less than six conspicuous places. You will require an attorney.

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Will Stage First Show Solely for Used Cars

Unique Event Opens in Milwaukee Auditorium April 20—To Be Held Quarterly If Successful

MILWAUKEE, March 3—Probably the first exclusive exposition of used cars to be held in the United States along the lines of the annual motor shows in the large centers of population will be the Milwaukee Used Car Congress, now being arranged for by a special committee of the Milwaukee Automobile Dealers, Inc., for the week beginning April 20. The entire Auditorium, where the annual Milwaukee show has been held in January for nine years, will be used for the display.

The decision was made by the committee, consisting of Frank J. Edwards, chairman; Jesse A. Smith, and George W. Browne, as a temporary measure of solution of the used car problem of Milwaukee distributers and dealers, following the decision of the association to postpone other means, such as forming a used car clearing house association, until the fall of 1917. It was recognized that the problem has reached a stage where action is necessary, and therefore it was decided to try the experiment of displaying all of the used car stocks in the hands of members of the M. A. D. collectively.

If the show is a success an exposition will be held once in each of the four seasons of the year.

Studebaker Increases Prices

DETROIT, March 5—Beginning today, the Studebaker Corp. has increased its prices $55 per car on four-cylinder roadsters and $80 per car on six-cylinder roadsters and $70 on six-cylinder touring cars.

Scott Heads Kenosha Dealers

KENOSHA, March 3—The organization of the Kenosha (Wis.) Automobile Dealers' Association has been completed by the election of Thomas S. Scott as president; Andrew F. Stahl, vice-president, and Theodore Kreimann, secretary and treasurer. The association will start its work by joining with the Kenosha Retailers' Association in conducting a motor show.

Studebaker Profits $8,611,245

SOUTH BEND, IND., March 5—Net profits of the Studebaker Corp. in 1916 were $8,611,245 on net sales of $61,988,-594. The margin of profit of sales thus was 13.89 per cent. The company sold 65,885 cars, an increase of 19,000 over the previous year. After deducting the preferred dividend there remained 26.14 per cent for the common, of which 10 per cent was distributed in dividends and the balance of 16.14 per cent or $4,843,695 was added to surplus account, which, with the surplus reserve accounts, show credits equal to 57.40 per cent of the outstanding common stock. The book value of the common stock Dec. 31, 1916, excluding good will, was $91.38 per share. It is quoted on the Stock Exchange at $100.25 to $100.50. The balance sheet shows quick assets of $35,-480,290, or more than three times the current liabilities, the cash amounting to $3,196,703, against $5,910,062 the previous year. Inventories total $21,477,-657, nearly 75 per cent more than in 1915. The consolidated surplus account shows a surplus of $13,314,647.

Dowse Re-enters Tire Trade

MILWAUKEE, March 3—The organization of a new rubber and tire interest of large proportions in the Middle West by Byron C. Dowse, former president of the Federal Rubber Mfg. Co., Milwaukee and Cudahy, Wis., which now is owned by the Fisk interests, is reported in Milwaukee. It is stated that Dowse is forming the Dowse Rubber Co. of Illinois, but further than this no details can be learned. Dowse formerly was one of the chief owners of the G. & J. Rubber Co., Indianapolis.

Sheepshead Foreclosure Threatened

NEW YORK CITY, March 6—The Sheepshead Bay Speedway Corporation, which built the 2-mile board track speedway is in financial difficulties and has called a meeting of its stockholders for March 21 to discuss plans for re-organization. The trouble is connected with a mortgage of $2,040,000 on the real estate. A foreclosure of this is under way. There is over $50,000 interest due on the mortgage. The trouble goes back to the building of the speedway when construction work greatly exceeded all estimates.

Kardo Axle Patent Valid

CINCINNATI, March 5—Claim 1 of the Kardo front axle patent has been sustained by the circuit court of appeals in Cincinnati, reversing the decision of the lower court. All license arrangements under the patent continue therefore in force. The suit was brought by the American Ball Bearing Co., one of the owners of the Kardo Co., against Edward B. Finch, a Chalmers dealer. The defendant had agreed to pay a stated royalty if any of the claims were upheld, hence the court did not pass on claims 2 and 3 after deciding claim 1 to be valid. The patent interests, as in other suits involving the Kardo invention, were advocated by the National Automobile Chamber of Commerce.

Lexington Sales Manager Killed

INDIANAPOLIS, IND., March 5—H. D. Hutcheson, district sales manager for the Lexington-Howard Automobile Co., Connersville, was killed last Wednesday when an automobile in which he was riding turned turtle on the Jackson highway.

Coast Dealers United to Seek National Show

N. A. C. C. General Manager Says Co-operation Now Makes Far West Event a Possibility

LOS ANGELES, Mar. 1—The willingness of the members of the Los Angeles Motor Car Dealers' Association to assist San Francisco in its move for a national automobile show on the Pacific Coast has made the bringing of the manufacturers' exhibits, such as are held in New York and Chicago, to this section possible.

This was the message that Alfred Reeves, general manager of the National Automobile Chamber of Commerce, brought the motor car dealers assembled at a banquet in his honor recently at the Athletic Club. When the possibility of a national show on this coast became known, the dealers here immediately agitated the selection of this city. The same thing was being done in San Francisco. It was evident both cities could not be favored. Thereupon the dealers here magnanimously assumed the attitude that the first thing was to get the show for the coast, and inasmuch as San Francisco has a suitable building for housing the show and this city does not, support should be directed to the northern city. There is an understanding among the leaders that if San Francisco gets the show and later Los Angeles has a proper building, the show shall alternate between the two places.

Cooper Wins Ascot Race

LOS ANGELES, CAL., March 4—Cooper in a Stutz won the 100-mile Ascot Speedway George Washington Sweepstakes in 1 hr. 27 min. 46 sec. to-day. His average was 68.05 m.p.h. Pullen in a Mercer was second in 1 hr. 28 min. 18 sec., with an average of 67.96 m.p.h. Taft was third in 1 hr. 30 min. 38 sec., averaging 66.19 m.p.h.

Cooper won $3,000 of the $5,000 prize money. Twenty thousand spectators attended. Joe Boyer, in his Frontenac, led at one time, but went out at 20 miles.

National Costs $50 More

INDIANAPOLIS, March 4—An increase of $50 has been made in the price of the four-passenger National runabouts, making the six now $1,800 and the twelve $2,200.

Pilot Going Up $50

RICHMOND, IND., March 4—The price of the Pilot 6-45 will be increased $50 to $1,200 on April 1.

Ford Tractors for England

DETROIT, Mar. 2—Two tractor plows have been sent to England by the Ford Motor Co. to be tried out by the director of food production.

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Dealers Fight for Cars in All Parts of U. S.

Rolling Stock Situation Better, But Routing Off Main Lines Is Difficult—Reports from Important Centers

NEW YORK, March 6—Hope, but no cars. That is the situation with the majority of dealers throughout the country. One bright spot appears on the dark horizon. That is the news from certain manufacturers that there are now freight cars available for shipment. So far, so good, and much better than before. But now the rolling stock has been secured there is difficulty in routing it to the distributing points.

Meanwhile many dealers are sending personal representatives to the factories to fight for preference in shipments. Here and there comes the report of dealers who are fairly well supplied, but the market is, in general, oversold.

New York is having a comparatively easy time. Shipments are late here, but some dealers are getting their full quota eventually, many are getting at least half, and one or two report that there has been no trouble to date.

Several remedies have been devised for the situation. It is possible in certain sections to drive cars from the factory. As the roads are impassable in the Northwest that territory is cut off from this form of relief. The Mississippi Valley expects to get spring shipments by the water route, and points east of Buffalo have a similar hope.

At present the Empire State dealers are blessing the weather, which retards the demand momentarily and gives the shipments a little extra time to catch up with the delay.

The conditions of affairs in the United States are reported from the main distributing centers as follows:

BOSTON, March 3—The freight situation is causing a lot of bother in New England. Harry K. Noyes, wholesale dealer for New England on the Buick, said yesterday that if he had 2000 cars he could get rid of them in a week. He has sold all he got through.

Joseph Donovan, of the Studebaker, said that he cannot get all the cars he ordered, and he doubts if he will be able to secure his allotment now. It is a similar tale of woe with the Jeffery man, C. P. Rockwell, who has been trying to get through shipments of trainloads.

The Gist of the Matter:

1. The car famine continues.
2. Dealers are scrapping for preference in shipments.
3. Factories are beginning to get rolling stock, but cannot get orders routed off the main lines.
4. "Drive-aways," shipping by water, express orders, quick unloading, and patience are the remedies.

Even the express car shipments are now held up. C. S. Henshaw, of Dodge Brothers, had some cars come by express, and it took 5 days to get them from Detroit. It is not possible to get enough of the express cars now.

Many of the dealers got in cars before the embargo to help out. The Jackson man, A. H. Sowers, who has sold more Jacksons in January than ever before in the history of the company, was all cleaned out a few days ago. Now he is waiting patiently for a trainload shipment, but he is afraid he cannot get it.

HARTFORD, CONN., March 1—All signs point to a car shortage in Hartford this spring. This past winter has been a bad one for getting in cars. David B. Roberts, manager of the Hartford Buick Co., says: "We have had but two carloads of Buicks come in by freight this winter. All the rest of our cars have come in by express and we have run many over the road from Springfield, to which point they were shipped on flat cars, where they arrived after an eventful trip in which numerous attempts were made to set fire to them on the way."

Russell P. Taber, Inc., Reo distributer, should have 150 cars on hand at this time. But 44 are in stock, and as soon as the weather permits cars will be run over the road from Buffalo. They will be driven from Lansing to Detroit and there shipped by boat to Buffalo. The Colonial Automobile Co. has been drawing on the New York Studebaker branch for cars, and has succeeded in stocking up.

Overland had them come through to Springfield on gondolas and Hartford's allotment was run over the road. Hudsons are coming through by express. This method has been followed here for some time. Chalmers and Oaklands come through by express, Chevrolets, Peerless, National, Winton and several other makes come out of New York.

YORK, PA., March 1—The freight situation in this city has reached an acute stage. Shipments are from 1 to 2 months late. While there is no serious need for cars, dealers feel that with the approach of spring weather, unless conditions improve, much money will be lost in being unable to deliver promptly.

The withholding of the large automobile cars of the Western roads from the Eastern territory, since the home route ruling went into effect, has also helped to make the situation more serious. Thirty dealers in this city and York County are affected.

Some car shipments are now being held in New York City, Philadelphia and other Eastern points in order to avoid delay in transit. Just as soon as the weather and road conditions permit dealers will go to these shipping points and drive the cars over the road. One dealer announced to-day that it was his intention to go to Flint, Mich., with a corps of 75 chauffeurs in order to bring a lot of cars to York. This, however, will not be until the roads have improved so as to allow for the long trip.

Dealers have in stock cars for immediate delivery only. In a number of instances shipments of cars have been received by express, but with the exorbitant cost and oftimes unavoidable delays, this method of handling cars has not proven popular. The local agent of the Adams Express Company received notice to-day that the company has arranged to place additional automobile cars in service between now and May 1 in order to carry the cars from the factories to the Eastern dealers.

WASHINGTON, D. C., March 2—Washington motor car dealers are being seriously affected by the lack of prompt freight shipments. The situation is growing worse rather than better, and at this writing at least six of the larger dealers are in Michigan endeavoring to get through cars that should have been here weeks ago. There are comparatively few cars in storage. Shipments by express are rare and are only being made when an insistent buyer demands it. One or two dealers attempted early in the year to bring cars over the road from Michigan, but abandoned the project after one trial owing to the poor condition of the roads. A period of good weather with a consequent brisk demand for cars would find many dealers here in no position to handle the trade, as stocks are sadly depleted. All dealers have made it a point to unload their

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cars just as soon as they arrive in the freight yards.

BLOOMINGTON, ILL., March 1—Central Illinois automobile dealers have been advised by the local agents of the railroads that the car situation has been growing steadily worse and that they believe that by April 1 every dealer will be forced to drive automobiles overland from the factory. The Buick agent here has driven forty cars overland, a run of 400 miles. The roads are in passable condition, although rough. One dealer has shipped two cars from Chicago by express, wanted for exhibition at the recent show. Another dealer received a car by freight from Indianapolis that had been placed at the freight house in that city ten days before it was received here. It was held until a box car suitable for shipment could be secured. Most of the dealers in this vicinity have sold cars subject to delivery on April 1, and there is no pressing need at this time.

PEORIA, ILL., March 1—Automobile business in Peoria and its immediate vicinity has been practically at a standstill for the past few months because of the car shortage, freight tie-ups and embargoes.

Dealers have been forced to send chauffeurs to Michigan and Indiana cities and drive cars to Peoria in order to fulfill contracts and have demonstration cars. The agents are confronted with a more serious problem now, as the roads are thawing and it is almost impossible to drive new machines through the mud roads in Illinois.

They are accepting shipments on flat cars, but in many instances this has proven expensive as car robbers board the flat cars and steal headlights, tires, electric bulbs, tools, practically stripping the new machines. There are practically no cars in storage because of the inability to secure large shipments for the past six months. Several of the dealers have ordered machines sent by express in order to fulfill their contracts. The Peoria automobile manufacturers are also encountering the same trouble in shipping their cars to agents throughout the country. They look for a relief in the western situation within the near future because of Interstate Commerce Commission rulings, but declare that the Eastern tie-up will remain about the same. Buick, Overland, Studebaker, Maxwell, Ford and Kissell agencies are fairly well stocked for the spring trade.

WILMINGTON, DEL., March 5—Bad weather and a declining stock market have in a measure counteracted what otherwise would have been a serious shortage of motor cars here, which for two months has been threatened by scarcity of freight cars on railroads in the territory depending on Wilmington, which practically means the State of Delaware. Some dealers say they have not received a consignment for two months, though cars have been ordered for a greater length of time, and none, as far as can be learned, count on an order being filled inside a month.

Some dealers have been helped out by factory agents in New York and Philadelphia, the cars being run here by their own power; 10-day shipments even from New York are now the rule. Express service has been tried, but delays have been encountered there also.

PHILADELPHIA, March 1—There is a serious shortage in railroad cars in and around Philadelphia, and the situation is the worst in years. Where in normal times the period required for the shipment of cars from Detroit to this city was 5 days, it now takes on an average of 2 weeks. An instance of the congestion is found in the delay of a shipment of automobiles which left Detroit on Feb. 2. These cars have not yet arrived.

The Packard Motor Car Co. reports the arrival of automobiles last Wednesday which left the factory on Feb. 18. The traffic men of this concern said there is an accumulation of freight cars here, but that it is due largely to the automobile people themselves because they delay in unloading. J. E. Gomery, of Gomery-Schwartz, Hudson dealers, says: "Shipments are arriving over periods of 30 days for freight and 5 days for express. We are well stocked with cars, however."

BALTIMORE, MD., March 2—A survey of the motor field finds most of the dealers to be in fair shape as to obtaining sufficient cars, but most of them are worrying as to how they will finally come out.

E. R. Myers, secretary and general manager of the Motor Car Co., Overland distributer, returned from the Toledo factory after making a fight for more cars. He managed to see that a half dozen carloads were shipped while he was there, and since he left has received notice that a like number have been shipped to him. He said this was possible because many of the nearby dealers are driving their machines from the factory.

The Lambert Auto Co. is getting its cars in by express and is keeping express cars on the job to obtain as many as the factory will let him have. Herbert M. Hartman, vice-president and general manager of the Zell Motor Car Co., Chalmers and Peerless distributer, has just returned from the Peerless factory, and they are getting in a few cars, but both of the factories are way behind on deliveries. Mr. Hartman said he had a hard time getting cars to fill his orders.

Several of the dealers are planning to arrange big parties of owners and drive their machines down from the factories. Last year P. W. Hall, of the Auto Outing Co., Buick distributers, brought 40 cars from the Buick factory with one group, and he plans to repeat the performance if necessary to get the cars. Theodore E. Straus, president of the United Auto Sales Co., Studebaker distributer, is getting machines in and expects to have very little trouble to fill his orders.

On the whole the Baltimore situation is apparently better than it is in several of the cities throughout the country from reports received here.

NASHVILLE, TENN., March 2—Delays in sending motor cars from the factory, slow movement en route, arrival of cars in ordinary box-cars, knocked down and requiring assembling—these are some of the difficulties produced by the freight-car situation with which Nashville distributers are wrestling in their efforts to supply this section.

The Cumberland Motor Car Co. reports a shipment sent out on January 20 and received on February 22, as against a normal shipping time of 4 or 5 days. The average time now for a carload to be on the way is 2 weeks.

The Automobile Exchange is considering driving from the Lexington plant at Connersville, Ind., in order to be able to deliver without undue delays. The Stockell Motor Company has been receiving Cadillacs on ordinary flat cars, and has had its estimate of cars required for spring delivery reduced by the factory. The Calhoun Motor Company, distributer of Reo cars, has been able to keep only a small stock on hand. Charles H. Simpson, one of the local Ford dealers, states that some of his customers have been driving their cars from the assembling plant at Louisville, rather than wait for rail shipments.

SYRACUSE, N. Y., March 3—Automobile dealers in this city are facing the most serious transportation problem in years. Shortage of freight and express cars are holding back shipments; deep snow on all highways in every direction prevents bringing cars over the road.

A few automobiles have been received nearly all of which were shipped in coal cars and on flat cars. The Overland-Syracuse Company, John W. Lee, Jr., president, has 150 cars ready for shipment to this city from the factory, but advices from the factory indicate that there is no hope of shipping them for weeks to come.

The Chalmers-Syracuse Company, handling Peerless and Chalmers cars, is more than fifty cars behind schedule. Charles G. Hanna hoped to have some of the cars sent on by express although the expense would be more than $1,000, but he was informed that there were no express cars available.

Another company that has been hard hit is the Syracuse Motor Car Company agent for Paige, Saxon and Maxwell cars. While this company has in storage a few of the small cars it will take more than half the summer, assuming that freight conditions improve, to fill orders for the larger models now on the books.

There is one hope held out and that is lake navigation. Providing freight congestion and shortage of cars continues when the lake boats begin to run, it is believed that cars can be shipped from Detroit to Buffalo by boat and then driven over the road from Buffalo.

MINNEAPOLIS, MINN., March 1—An acute shortage of railroad equipment has

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hit the motor car industry here. It is hard to get cars from the factories, the factories cannot deliver in this territory direct, and long delays in the Twin City yards are the rule, sometimes reaching 30 days. Few shipments are made into territory by express, and no cars are going out under power because road traveling is impossible and will be under embargo until May 1, possibly.

One relief is that due to Interstate Commerce Commission interference flour trains are moving east by special orders. Advantage of this is being taken by the factories to load automobiles in here and flour out. Flour mills snap up the freight cars as soon as they are unloaded and return them to factory points loaded with flour.

Assembling plants fare better because almost any box car is good enough to carry parts and it is easier to get cars to ship automobiles into the local trade territory than to get freight from the East.

A concerted move is on to get consignees to unload freight cars at once and send them into circulation again. With all this, receipts of cars from factories is a small percentage of orders on file and way below the average of a normal winter.

DENVER, COL., March 2—Practically all the big distributers here but one seriously need cars. The Carter Motor Co. has 400 cars in storage including Saxon, Grant, Dort, and Chevrolet models. E. J. Johnson has eighty Chalmers stored and is having fifty driven from the factory to Chicago to be shipped. Overland has eighty cars stored in its branch here and is having fifty driven to Omaha to be shipped. Tom Botterill is getting express and freight shipments via St. Louis. Dodge distributers are having increasing difficulty in getting cars, but the situation is getting better for Pierce-Arrow. R. R. Hall is having two carloads of Cadillacs expressed, but is sold way ahead. McFarland Auto. Co. has seventy Buicks coming on flat cars. W. W. Barnett needs seventy Oldsmobiles for present sales, and is sending a representative East to fight for them. The cars may be driven to Grand Rapids to be shipped. The Headington Auto Co. is getting its motor cars by express. The distribution is easy through the mountain territory once the cars reach Denver. The Botterill, Hall, and Barnett interests are arranging to send personal representatives East to fight for shipping.

BUFFALO, N. Y., March 1—Automobile dealers of Buffalo are confronted with the most complete freight tieup that has ever been experienced by them. None of them carried many cars in storage and the effect of the acute situation that emanates from the tieup has been disastrous. They have been unable to get any shipment from the West. Railroad embargoes which favor shipments of coal and foodstuffs have practically forbidden transportation of automobiles. This situation completely encompassed the city about 2 weeks ago and an appeal was made to the Public Service Commission for relief. Manufacturers said they would have to close their plants unless relief was forthcoming.

Dealers are driving cars from factories to their places of business and sending them to buyers in their territory in the same manner. A string of 200 cars was driven into this city from Flint, Mach., last week. There is a lack of cars. Some of the dealers say it is impossible to get any cars. Pierce-Arrow Motor Car Corp. needs 300.

PITTSBURGH, PA., March 2—Pittsburgh never saw an automobile freight situation like the present one. There have been car shortages before but at no time has the difficulty of getting cars into this market compared with the troubles which dealers are now having.

Shortly after Feb. 1 everything began to tighten up. Few companies have got any cars by railroad freight since then. All the big agencies report cars on the road for from 30 to 60 days, which, in ordinary times, would be set down at their destination in from 24 to 48 hours.

The Packard Motor Car Co., during the past 2 weeks, has driven in fifteen pleasure cars and six trucks. Since Feb. 8 this company has had practically no shipments at all on the railroads. It was forced to bring in two trucks by express on emergency orders. Its shipments earlier in the winter were very fair so that the stock of Packards on hand is pretty well up toward normal.

The Kissel Kar agency is having a four-weeks wait for cars which have been shipped. This company has also brought in a few by express. It is waiting patiently for the lakes to open so that it can bring cars across from Wisconsin to Cleveland and drive them down from that point. It has already been bringing in a few Jackson cars from Michigan over extremely bad roads. Most of its Kissel cars are in storage in Milwaukee and Hartford, Wis.

The Oakland agency reports that it takes 30 days for cars to make a two-days' trip. This company has already started 150 pleasure cars which are expected to arrive some time this week.

The Winton Motor Car Co. drove in two cars from Cleveland last week over terrible roads. Its shipments are away behind but it is in better shape as to stocks than many other dealers in the city. The Dodge car agency has been driving in many cars from Detroit in order to take care of its early spring sales. The Cadillac agency has not had a good shipment of cars for several weeks. The Cadillac has received no cars on the railroads for more than a month.

All dealers agree that the expense of driving in cars from Detroit and Cleveland is from $15 to $20 per car more than the average charge for freight. In addition to this, with the roads as they are at present, nearly every car driven in must be re-finished, which adds not a little to the cost burden. Even under these handicaps the expense is much less than by express.

DALLAS, TEX., March 2—Texas motor car dealers are facing the most serious time in history, for shipments there are from 7 to 25 days late and there are hardly any cars on hand. Most of the shipments are coming on flat cars, and several express orders have been received.

DES MOINES, IOWA, March 1—Des Moines and Iowa motor distributers and dealers face a serious situation as a result of the freight car shortage and to counteract the situation local distributers already are sending big squads of men to the factories to drive the cars out on their own power. A Ford squad of 100 strong is now on the way to the factory and will bring back one car each. Another squad has gone to the Stevens factory to bring back ninety cars. Only a few distributers have a surplus of cars on hand. Among these is the Hudson-Jones Company which is said to have half a million dollars' worth of cars now in storage in the state. The Kruidenier-Cadillac Company is getting a few cars by freight but not enough to supply the demand and is considering a plan of water shipment to Chicago where buyers will be urged to get their own cars and drive them home. Buick and Overland distributers also are reported to be short of cars. The shortage is not so serious for the Chalmers and Packard lines on account of surplus cars in storage.

LOUISVILLE, KY., March 4—Louisville automobile dealers are experiencing great difficulty in getting cars from their factories because of the freight car shortage. Salesmen, demonstrators and mechanics are being sent to Detroit, Toledo and other cities where the big factories are located with instructions to drive the cars through in order to insure deliveries. The average freight rate for the medium priced car from Detroit is about $25, while it costs about $10 more to pay a driver's expenses to Detroit and drive the new machines over the roads. A few cars are being shipped in on flat and coal cars.

FINDLAY, OHIO, March 2—It is estimated that upward of 2000 cars have passed through Findlay from Michigan factories to southern points during the month of February, because of car shortage. Within the past few days the situation seems to be easing up and the railroads are being resorted to. The roads have been frozen tight and the cars have gone through in splendid shape, at much less cost to the dealer than had he used the railroad. There are few cars being stored in this territory, as the customer is taking them off the dealer's hand the same day they are being received.

CINCINNATI, OHIO, March 1—The most serious situation confronting motor car dealers in Cincinnati and vicinity is the freight congestion. Only 20 per cent of the cars required are being shipped. A few dealers have anticipated the crisis and prepared for it. There are no great quantities of motor cars in storage, the largest automobile houses having about 25 per cent of the amount of machines they carried in last year's stock. The number of automobiles driven over the road by a single firm varies from a few to several hundred.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

C. B. Smith has been elected president and general manager of the Stewart-Warner Speedometer Corp., Chicago. **W. J. Zucker** has been named secretary and second vice-president, **T. T. Sullivan** is treasurer and third vice-president, **V. R. Bucklin** is first vice-president, and **L. H. LaChance** has been elected chairman of the board of directors.

Harry L. Bill has resigned as vice-president and general manager of the Springfield Body Corp., Detroit and Springfield, Mass., due to illness and a death in his family.

E. B. McKay, formerly manager of the Chicago branch of the Empire Tire & Rubber Co., has been elected first vice-president, sales manager, and a director of the company.

A. A. Gloetzner assumed charge of the sales, engineering, and service departments of the Covert Gear Co., upon the company's removal from Lockport, N. Y., to Detroit on Mar. 1. He was formerly sales manager of the company.

H. G. Weymouth has been appointed general superintendent of the Torbensen Axle Co., Cleveland, Ohio. He was formerly general superintendent of the National Equipment Co., Springfield, Mass.

Alfred H. Bartsch, for the past 7 years advertising manager of the Bosch Magneto Co., has resigned. He has become secretary of the McLain, Hadden, Simpers Co., an advertising agency. Bartsch is succeeded by **R. S. Westcott**, who has been assistant advertising manager.

J. W. Hawk has been appointed western sales manager for Chalmers over territory including everything west of Denver and also Honolulu. He was formerly manager of the Chalmers branch in Salt Lake City.

Fred C. Carter will travel through the New England States for the Regal Motor Car Co., Detroit. He was formerly with the Haynes company. **W. H. Bartleman**, formerly with the Chalmers company, will have charge of the Regal sales in Pennsylvania. **C. P. Townsend**, formerly a Winton representative in the South, will be in charge of parts of Wisconsin, Illinois, and Iowa.

R. J. Wilkinson has been appointed sales manager in Minneapolis over the northwest territory for the Jenkin Vulcan Spring Co. **W. P. Middleton**, formerly in charge of the Fort Worth branch of the company, has been appointed manager of the Sumter, S. C., branch.

N. F. Hopkins has resigned as general manager of the Atwood Aeronautic Co., Williamsport, Pa.

H. C. Belt, formerly with the Stevens-Duryea company and the Overland company, has taken a position as sales manager of the Belt-Franklin company, East Gay and Fifth streets, Columbus, Ohio. **O. C. Belt**, proprietor, will confine his activities to his duties as general manager.

H. T. Dunn has offered his resignation, effective May 1, from the vice-presidency of the Willys-Overland company to the board of directors of the company. This step is taken due to the increased demands upon Mr. Dunn's time in his capacity of president of the Fisk Rubber Co. and the Federal Rubber Co.

R. M. Harris, Columbus, O., assistant treasurer of the Prismolite Corp., has succeeded R. E. Radebaugh as manager of the Columbus branch of the Prismolite concern.

L. E. Miller, Rockford, Ill., has assumed the duties of advertising and sales manager of the Sterling Motor Truck Co., Milwaukee. He was formerly with the Free Sewing Machine Co., Rockford, as advertising manager.

J. E. Morgan, formerly secretary of the Wallace C. Hood Service Bureau, Detroit, has become secretary and treasurer of the bureau.

L. D. Brown has been appointed treasurer of the B. F. Goodrich Co. He was formerly treasurer of the First National Bank, Akron.

F. W. Jackson, Holland, Mich., has been appointed territorial sales manager for the Ebert-Duryea Farm Tractor Co., Chicago, recently organized to manufacture a two-wheeled farm tractor.

S. Deutsch has become vice-president and sales manager of the Clum Mfg. Co., Milwaukee, Wis.

Alford A. Goenner, Basle, Switzerland, will distribute Jeffery cars and trucks in that city, Lucerne, Berne, Zurich and Geneva.

Neil Macneale has been named general manager and a director of the Corcoran-Victor Co., lamp maker, Cincinnati, Ohio. Mr. Macneale is former owner of the Toledo Electric Welder Co.

A. J. McClure has become advertising manager of the Mitchell Car Co., Racine, Wis. He was formerly Toronto manager of the Mortimer Co., Ottawa, Can.

J. C. Wood has become advertising manager of the Hal Motor Car Co., Cleveland.

Motor Car Securities Quotations

	March 3, 1917 Bid	Asked
*Ajax Rubber Co	69	70
*J. I. Case T. M. Co., pfd	82	85
Chalmers Motor Co., Com	20	30
Chalmers Motor Co., pfd	—	—
*Chandler Motor Car Co	97½	98½
Chevrolet Motor Co	110	112
Fisher Body Corp., com	35	40
Fisher Body Corp., pfd	91½	93½
Fisk Rubber Co., com	75	85
Fisk Rubber Co., 1st pfd	101	105
Fisk Rubber Co., 2d pfd	70	100
Firestone Tire & Rub. Co., com.	143	146
Firestone Tire & Rub. Co., pfd.	107½	109
*General Motors Co., com	112	112¼
*General Motors Co., pfd	89	89½
*B. F. Goodrich Co., com	55¾	56¼
*B. F. Goodrich Co., pfd	108	112
Goodyear Tire & Rub. Co., com.	140	250
Goodyear Tire & Rub. Co., pfd.	107	108¼
Grant Motor Car Corp	5	7
Hupp Motor Car Corp, com	3¼	4½
Hupp Motor Car Co., pfd	—	—
International Motor Co., com	14	18
International Motor Co., 1st pfd.	—	10
International Motor Co., 2d pfd.	—	30
*Kelly-Springfield Tire Co., com.	56½	57¾
*Kelly-Spr'gfield T. Co., 1st pfd.	91	95
*Lee Rubber & Tire Corp	18¾	19¼
*Maxwell Motor Co., Inc., com.	55½	56
*Maxwell M. Co., Inc., 1st pfd.	67½	69
*Maxwell M. Co., Inc., 2d pfd.	34½	35
Miller Rubber Co., com	261	267
Miller Rubber Co., pfd	105	107
Packard Motor Car Co., com	156	—
Packard Motor Car Co., pfd	—	102
Paige-Detroit Motor Car Co	38	39
Peerless Truck & Motor Corp	15	18
Portage Rubber Co., com	160	165
Portage Rubber Co., pfd	—	—
Regal Motor Car Co., pfd	27	33
†Reo Motor Car Co	35½	36¼
*Saxon Motor Car Corp	54	50
Springfield Body Corp., com	75	80
Springfield Body Corp., pfd	110	120
Standard Mtr. Construction Co.	7	8
*Stewart-Warner Speed. Corp.	80⅞	81⅞
*Studebaker Corp., com	98½	99½
*Studebaker Corp., pfd	103	108
Swinehart Tire & Rubber Co	79½	85½
United Motors Corp	39	39½
*U. S. Rubber Co., com	53¼	54½
*U. S. Rubber Co., pfd	107½	108½
*White Motor Co	49	50
*Willys-Overland Co., com	34⅜	34¾
*Willys-Overland Co., pfd	96	98

*At close Mar. 3, 1917. Listed N. Y. Stock Exchange.
†Par value $10; others $100.

Big Spokane Expansion in Motor Car Industry

Seven New Garages and Service Stations Will Cost $160,000—Four-Story Overland Building

SPOKANE, WASH., March 1—Expenditures for the construction of new public garages and motor car service stations already planned will total over $160,000. It is believed that fully $300,000 will be spent in new buildings for the industry in this city during 1917.

Fritz Kilmer will erect a service garage, to cost $20,000. The Overland Motor Car Co. will build a four-story garage, to be occupied by Harry Olive, costing $65,000. The John Doran Co. will occupy a one-story garage valued at $25,000. Fosdick Auto Co. is to have erected for it a $15,000 structure, one-story. The Northwest Auto Co. will soon occupy a new $15,000 building 50 x 150; G. R. Pemberton is to have a $15,000 garage with 50 ft. frontage on two avenues, with a depth of 180 ft., and the Fisk Rubber Co. has leased a new $8,500 plant to be used as a tire service station.

May Revive Remington

NEW YORK, Mar. 5—There is a strong probability of a revival of the Remington company, which was organized a few years ago for the manufacture of automobile, under the name of Remington Motors, Inc., with temporary offices at 100 Broadway, in the office of W. Morton Hetzell, a financial organization. The new Remington is expected to list at approximately $1,050, and will use a Wisconsin engine. Negotiations are on at present for securing a factory for assembly purposes. A complete organization has not been effected, but a few officers have been selected. David Rheinhol will be engineer. Factory work will be in charge of E. H. Chappell. It is understood that some of the finances are being handled by interests closely associated with strong financial people.

Detroit Gauge Takes Over Retlaw

DETROIT, Mar. 3—The Detroit Gauge & Metal Stamping Co. has been granted articles of incorporation, with capital stock of $50,000, and has assumed the entire business of the Retlaw Mfg. Co., manufacturers of gasoline gauges. The company will add to the present equipment and enlarge the present factory space. The officers are: Oliver S. Kelly, president; E. C. Lewis, vice-president; Seabourn Livingston, secretary and treasurer. E. S. Kelly and William Livingstone have been named as directors.

Miller Rubber Increases Capital

AKRON, Mar. 3—The Miller Rubber Co. will offer its common stockholders 5000 shares of new common stock pro rata at par.

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Would Restrict Dealers With Pawnbroker Rules

Massachusetts Bill Rider Arouses Strong Opposition on Part of Insulted Distributers

BOSTON, Mar. 5—Massachusetts dealers are aroused over a proposed amendment to the motor vehicle law which would put them under police regulations similar to those enforced on junk dealers and pawnbrokers. An attempt is being made to pass this measure through the State Legislature as a rider on Bill No. 1513, which provides for the registration of cars with police authorities within 24 hours of their purchase.

The rider divides the dealers into two classes, first, those dealing chiefly in new cars; second, those who deal in used cars.

The rider is urged, it is believed, by police authorities in different parts of the State. Among the provisions are:

No used car shall be resold by a used car dealer within 15 days of its purchase.

Daily reports of purchases and sales of used cars must be made to the police.

Complete descriptions of used cars in stock must be recorded as directed by the licensing authority, and such records shall be open to the inspection of the local police.

All public garages must obtain a police license for $100.

Dealers or garagemen keeping cars in storage shall keep a record of the time which every motor vehicle enters or leaves their place of storage.

These stringent measures are proposed to remedy car theft. Dealers here object, however, to being put under regulations so rigid as to imply that their operations are not reputable.

The proposed measure would also inflict jail penalties for using a motor vehicle without the owner's consent, even if there is no intent of theft.

To Check Up Gas Pumps

YORK, Pa., March 3—Prompt steps will be taken by James Sweeney, state chief of standards, to obtain inspection of all measuring pumps in the state which sell gasoline and oil. The bureau will send word to the inspectors of weights and measures throughout the state to begin the inspection. In several cities the inspectors have already made inspections. The state will call for reports and arrangements have been made to prosecute where it is found that fraud has been practised.

Dorris Triples Capital

ST. LOUIS, March 5—The Dorris Motor Car Co. has increased its capital from $330,000 to $1,000,000 and W. R. Colcord has been elected president to succeed H. B. Krenning, founder of the company. Krenning will retain an interest in the company but plans to retire. Other officers of the company are: George P. Dorris, vice-president; Webster Colburn, treasurer; A. C. Schmid, secretary; I. C. Muckermann, president of the Polar Wave Ice and Fuel Co., and Frank C. Thompson, president of the Carondelet Foundry Co., have been added to the Board of Directors.

To Produce Kissel Twelve

NEW YORK, March 2—The Kissel Motor Car Co. will start active production of its twelve in about two weeks. The car will sell at $2,250 for the regular touring bodies, and $2,650 with the All-Year Sedan. The motor will be 2⅞ x 5, with overhead valves. Other features include force-feed oiling, multiple disc clutch, Delco ignition, Stromberg carburetor, both internal expanding and external contracting brakes, underslung ¾ elliptic rear springs, vanadium springs on both front and rear, Goodyear tires and Firestone demountable rims, with two extra rims.

Kissel Advances $50

NEW YORK, March 2—The Kissel Motor Car Co. yesterday advanced $50 on the 642 models and $100 on the Hundred Point Six models. The touring sedan now sells at $1,735; the Hundred Point Six touring car at $1,295, and the De Luxe 6-42, seven passenger, at $1,750.

$100 Increase on Jackson

JACKSON, MICH., March 1—The Jackson Automobile Co. has increased its prices $100 on its 349 models, except the Sedan, which remains at $1,995. The two-passenger model now sells at $1,395; the five-passenger at $1,395; the seven-passenger at $1,495, and the detachable top model at $1,605.

Cole to Cost $100 More

INDIANAPOLIS, Ind., March 2—The Cole Motor Car Co., will advance $100 on April 1. Present prices are $1,695 for the touring car and the Tuxedo roadster; $2,295 for the Toursedan and the Tourcoupe.

Wholesale Chalmers Branch in Minneapolis

MINNEAPOLIS, Mar. 3—The Chalmers Motor Co. of Minnesota has taken over the wholesale distribution of Chalmers cars for Minneapolis territory, including Minnesota, North Dakota, two-thirds of South Dakota and western Wisconsin. Richard Bacon is head of the organization. The company has opened with 64,000 sq. ft. of floor space at Hennepin Avenue and Harmon Place.

Ford Wins Price List Suit

PITTSBURGH, Mar. 3—Ford Motor Car Co. has won a test case here upholding the price lists set for its agents. Judge Stephens in summing up the law in the case of Dunbar vs. Quinn, held that the Ford company's contract with agents is valid and cannot be violated.

Texas Dealers Planning Permanent Organization

First Annual Meeting at Dallas—Over 200 Expected for 2-Day Conference March 7-8

DALLAS, Mar. 1—Plans were completed to-day and the program announced for the first annual meeting of the Texas Automobile Dealers' Association in Dallas, March 7 and 8. More than two hundred dealers are expected, when permanent organization will be effected. Secretary C. L. Zutavern has been advised by dealers from all sections of the State that they will attend. The program follows:

March 7.—Membership committee will meet at 10 a.m. at the Chamber of Commerce to receive applications for membership.

Meeting of all members and prospective members of the association at the Chamber of Commerce for permanent organization at 2 p.m.

Report of temporary president, H. O. Adams, and steps taken for the organization since the Austin meeting. Reading of minutes of meeting at Austin, C. L. Zutavern, secretary. "Benefits of Organization," J. C. Thorpe, Chicago, general director of the Automobile Trades Association.

March 8.—Meeting at Lakewood Country Club at 9:30 a.m. Dallas dealers will furnish automobiles for transportation. Report of the nominating committee. Election of permanent officers. Adoption of constitution and by-laws.

Luncheon 12 to 1:30 p.m., at which time all members will be the guests of the Dallas Automobile and Accessory Dealers' Association.

Appointment of permanent committees 2 p.m.

Address, "The Highway Bill," Geo. W. Graham, president of the Overland Houston Company.

This talk will be followed by five-minute speeches by members of the organization. Adjournment will be taken at 5 p.m.

Marlin Gets Standard Bearing

PHILADELPHIA, March 1—The Standard Roller Bearing Co. property has been acquired by the Marlin Arms Co., New Haven, Conn., for the price of $2,000,000, including creditors' claims and outstanding stock. Judge Thompson, in the United States District Court, confirmed the sale, which transferred the assets to a syndicate headed by Frank Smith, which represented the munitions firm. The Marlin company has also bought the Rockwell-Drake plant, Plainfield, Conn., which is equipped to make ball bearings. The Marlin company plans to invest $1,000,000 in equipment in its new property, which will be used as previously for the manufacture of bearings.

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Watertown Show Sales Approximate $50,000

Twenty Different Makes of Cars on View—Northern New York Industries Have Banner Year

WATERTOWN, N. Y., March 3—For the second time in two weeks, beginning Wednesday, the floors of the State Armory here have been crowded with motor cars, salesmen and visitors. The eleven members of the Jefferson County Automobile Dealers' Association all expressed themselves as being well satisfied with the results of this show. Over 6,000 people attended.

Sales made on the floor were unusually large for this city, nearly reaching $50,000. Sales were about evenly divided between farmers and city people.

Watertown, as the metropolis of the north country, comprising Jefferson, St. Lawrence, Lewis and Franklin counties, is an ideal distributing center for this section. Visitors from all over the north country attended the show this week, despite the fearful condition of the roads.

Twenty different makes of cars were exhibited and a number of accessory and motorcycle firms were also represented. The decorations were the same as those used at the Baltimore and Syracuse shows, consisting of painted scenery depicting a California sunset.

Dealers in this section expect that this will be the greatest year on record here for the sale of motor cars. Their handicap is not in selling the cars, but in obtaining delivery. Due to the freight embargo practically all cars received here for this show and the one of the Automobile Dealers, Inc., two weeks ago, were shipped by express and many dealers are forced to get all of their cars this way or lose sales.

From a financial viewpoint this city and the territory around it is in a most flourishing condition. In Watertown alone, according to the recent report of the Chamber of Commerce, eight new industries have been started and the old ones, such as the New York Airbrake Company, have had a phenomenal year, not entirely due to war orders.

The paper and mineral industries all through northern New York have made almost fabulous profits during the past twelve months. The employees of these industries, as well as those of plants manufacturing munitions are receiving wages which a few years ago would have staggered them. Many a common laborer is riding to work in his motor car.

While in some respects the crops last season were a disappointment to the farmers, the subsequent high prices of all products has more than made up for the losses thus sustained. As the foremost dairy section in the United States, the high prices of milk, butter and cheese have paid off many a mortgage.

This generally prosperous condition is reflected in the bank reports of Watertown. The commercial banks show deposits of $10,922,272, a gain of $2,676,778 over the corresponding date last year. The savings banks show a gain of $881,171 and total deposits of $12,603,459. Bank deposits throughout the surrounding country have taken a corresponding leap upward.

Goodrich Prices Advance

NEW YORK, Mar. 5—Moderate increases in tire prices have been put into effect by the B. F. Goodrich Co., Akron, Ohio. With the announcement that Fisk prices were to advance, made last week, a general rise was expected all along the line. Interviews with the New York offices of the major tire manufacturers to-day revealed that no sharp rise in prices is likely at the present time. The high cost of fabric, especially Egyptian and Sea Island cotton, is forcing the increase.

The Goodrich schedule on casings is now $11.65 for the 30 by 3, formerly $11.35; $15.10 for the 30 by 3½ formerly $14.70; no increase in the $17.70 price for the 32 by 3½; $25.30 for the 34 by 4, formerly $24.60; $36.25 for the 36 by 4½, formerly $34.20.

A slight increase was also made on the tubes which are now priced at: $2.75 for the 30 by 3, formerly $2.70; $3.40 for the 30 by 3½, formerly $3.05; $3.50 on the 32 by 3½, formerly $3.40; $4.70 on the 34 by 4, formerly $4.25; $6.05 on the 36 by 4½, formerly $5.60.

Chevrolet Surplus $31,123,274

NEW YORK, Mar. 2—The Chevrolet Motor Co. during 1916 showed an increase in its surplus of $29,469,588, largely through the acquisition of stock of other companies. This increase is equal to 46.04 per cent on the $64,004,800 stock. Among the investments were 450,000 shares of common stock of the General Motors Corp. The net income from operations was $7,095,071, and current additions to surplus from the stock secured in the other companies, $22,374,517. The profit and loss surplus at the close of the year was $31,123,274. Approximately 77,000 cars were sold during 1916.

Clum Gets Cox Patents

MILWAUKEE, WIS., March 1—The Clum Mfg. Co. has perfected arrangements so that it is the sole licensee under Cox patents No. 841,844, 1907, and No. 1,015,300, 1912, covering the manufacture of key operated switches.

Nashville to Organize

NASHVILLE, Tenn., March 2—Plans are being made by Nashville dealers, garagemen and accessory dealers to form an association. A census of those in the industry shows 76 concerns and it is claimed that with all of these organized into one body, one of the strongest associations in the country can be built up. Lawrence Hersig, an accessories dealer, has taken steps to bring representatives of all the concerns together for the purpose of organization.

Windy City Service Men May Form Organization

Twenty-five Hold Preliminary Meeting—Report That Repairmen Are Starting Union

CHICAGO, Mar. 1—That the methods employed by one service manager may help another to solve his problems is the reason behind the proposed formation of a service managers' organization, tentative plans for which were made to-night at the local headquarters of the Mitchell agency. Twenty-five service men, coming from the service departments of Mitchell, Chandler, Mercer, Hupmobile, Chalmers, Premier, HAL-Twelve, Overland, Cadillac, Jeffery, Haynes, Arthur Jones Electric Co., Vesta Accumulator Co., Pellets Magneto Exchange and Motor Car Service Co., attended to-night and plans were made for another meeting and dinner at the Hotel Metropole, March 15, when further details will be taken up and officers elected.

The meeting to-night was of the round-table variety, each man explaining some phase of service. It was evident that there is great need for an intermingling of service managers.

It was asserted at the meeting that the repairmen are organizing as a branch of the machinists' union, and that some 300 are to be initiated next Tuesday. A demand, it is understood, will be made for 62 cents an hour the first year and 68 cents the second year.

Fifty-two Exhibits at Fargo

FARGO, N. D., Mar. 3—The fourth annual Gate City automobile show was held March 13-16 in the Armory and Auditorium. Thirty-five different makes of cars were exhibited, four oil companies made exhibits, three tire houses had booths and one tire filler company, Ford accessories were shown, a booth contained repair machinery. There were three distinct electrical displays, one exclusive general accessory exhibit, a motorcycle exhibit and two trailer exhibits.

Warner Buys Menhall Holdings

BELOIT, WIS., Mar. 3—James Menhall, vice-president of the Warner Mfg. Co., has sold his complete holdings in the company to A. P. Warner, who becomes complete owner by this transaction.

Hood Drops Two Departments

DETROIT, MICH., March 1—Wallace C. Hood Service Bureau has discontinued the auditing and accounting departments formerly in charge of Thomas D. Culberhouse, in order to devote more time to the sales promotion, advertising, publicity, material purchasing and traffic divisions.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-41	6-3½x4½	25.3	Remy	Stmbg	Remy	DF	3	122	32x4	SS	1195	†1250	1195	1495	1820	....	....
ALLEN																	
Classic	4-3½x5	22.5	Wsths	Stmbg	Wsths	C	3	112	32x3½	SS	850	850	†850	1175	....	....	1195
AMERICAN-SIX																	
A	6-3 x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1285	....	....	....	....	....
AMS-STERLING																	
17	4-3½x4½	15 6	Bosch	Stmbg	Bosch	DP	3	110	30x3½	SS	...	....	....	....	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25 4	Wsths	Own	Wsths	DP	3	120	33x4	SS	1275	1250	*1250	....	....	....	....
APPERSON																	
6-17	6-3½x5	29.4	Remy	Rafld	Bijur	DP	3	130	31x4	SS	1750	....	1750	....	....	....	....
8-17	8-3½x5	31.2	Remy	Rafld	Bijur	DP	3	130	35x4½	SS	2000	....	2000	....	....	....	....
AUBURN																	
6-39	6-3½x5	23.4	Remy	Rafld	Remy	DP	3	120	34x4	SS	1145	1145	†1145	....	....	....	1320
6-44	6-3½x5½	29 4	Delco	Rafld	Delco	DP	3	131	35x4½	SS	....	†1535	1535	....	....	....	1785
AUSTIN																	
Hy-King	12-2½x5	39 7	Delco	Stmbg	Delco	D	6	142½	34x4½	SS	3750	3750	3750	4550	4950	5250	....
BIDDLE																	
D	4-3½x5½	22.5	Dixie	Zenith	G & D	DP	4	122	32x4	QD	2200	2350	†2275	....	....	3800	3900
BOUR-DAVIS																	
17	6-3½x4½	25.3	G & D	Stmbg	G & D	DP	3	118	32x4	QD	....	1250	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U. S. L.	C	3	125	34x4½	SS	†6500	....	....	....	7500	7700	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Mayer	Splitdorf	C	3	105	30x3½	QD	685	685	†685	....	....	....	810
8-38	8-3 x3½	28.8	Remy	Zenith	Aplco	C	3	114	32x3½	QD	‡985	985	....	....	....	....	....
4-38	4-3½x5½	18 9	Remy	Mayer	Aplco	C	3	114	32x3½	QD	†785	785	....	....	....	....	....
BUICK																	
D 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	660	675	....	....	....	....	....
6-44-47	6-3½x4½	25 3	Delco	Marvel	Delco	C	3	115	34x4	SS	1040	1070	‡1440	....	1835	....	....
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DD	3	124	34x4½	SS	....	....	1385	....	....	....	....
CADILLAC																	
. 55	8-3½x5½	31.2	Delco	Own	Delco	D	3	132 / 125	36x4½	SS	†2240	2240	2240	2960	....	3760	2835
CASE																	
T17	4-3½x6	21.0	Conn	Rafld	A-Lite	C	3	120	34x4	QD	†1190	. ..	1190	....	....	....	....
CHALMERS																	
6-30	6-3½x4½	25.4	Remy	Stmbg	Wsths	DP	3	115 / 122	32x4	SS	1230	1250	1350	1440	1850	2550	....
CHANDLER																	
17	6-3½x5	27.3	Bosch	Rafld	G & D	D	3	123	34x4	SS	†1395	....	1395	1995	1995	2695	1995
CHEVROLET																	
4-90	4-3½x4	21.7	Conn	Zenith	A-Lite	C	3	102	30x3½	C	550	550	....	....	....	....	....
F5-F2	4-3½x4	21.7	Conn	Zenith	A-Lite	C	3	112	32x3½	SS	800	800	....	....	....	....	....
D	8-3½x4	36.45	Conn	....	A-Lite	C	3	120	34x4	SS	1385	....	....	....	....	....	....
COLE																	
8-60	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	†1695	....	1695	....	2295	2295	2195
CROW-ELKHART																	
CE-35	4-3½x5	19.6	Conn	Zenith	Dyneto	DP	3	114	32x3½	SS	†825	795	. ..	....	....	....	935
DANIELS																	
8	8-3½x5	33 8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	†2800	....	2800	....	....	4000	. ..
DAVIS																	
H & I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	1195	1195	1195	1595	1795	....	1995
J	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	124	34x4½	....	....	1495	1495	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25 3	Conn	Ball	A-Lite	D	3	119	33x4	SS	‡1195	1195	. ..	1373	. ..	....	1398
F	4-3½x4½	22 5	Dixie	Schebler	Dyneto	D	3	112	33x4	SS	.. .	985	....	....	....	....	....
DODGE BROTHERS																	
	4-3½x4½	24	Delco	Stewart	N.E.	D	3	114	32x3½	S	785	785	...	950	1185	....	950
DORRIS																	
I-B-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	8	128	36x4½	SS	....	....	2475	3250	3350	3675	....
DORT																	
9	4-3½x5	16 9	Conn	Carter	Wsths	C	3	105	30x3½	QDC	†695	695	....	....	1065	....	815

Model	Motor	S. A. E.	Ignition	Carbureter	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
LOZIER																	
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eismn	Rafld	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																	
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD		132	35x4½	SS	....	....	1500	....	....	....	....
MADISON																	
4	6-3½x5	23 4	Remy	Rafld	Remy	DD	3	120	34x4	SS	....	....	....	....	....	....	....
	6-3½x5	23.4	Remy	Rafld	Remy	DD	3	115	34x4	SS	1050-1150		....	....	....	....	....
	6-3½x5	23.4	Remy	Rafld	Remy	DD	3	124	34x4	SS	†1150 / 1250	†1150 / 1250	1150-1250	....	....	....	....
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	36x3½	SS	695	....	....	....	....	....	....
MAJESTIC																	
M	8-3 x5	28.8	A.Kent	....	R & M	DP	3	125	32x4	....	†1500	1650	1650	....	....	....	....
A	8-3½x5	33.8	A.Kent	....	R & M	DP	3	135	35x5	....	†3000	3000	3000	....	....	....	....
MARION HANDLEY																	
6-40	6-3½x5	23.4	Wsths	Stmbg	Wsths	DD	3	120	32x4	SS	†1275	....	1275	....	....	....	....
6-60	6-3½x5½	29.4	Wsths	Stmbg	Wsths	DD	3	125	35x4½	SS	....	....	1575	2250	....	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bosch	C	3	136	34x4½	QD	††2100	3050	3100	....	4100	4500	....
MAXWELL																	
25	4-3½x4½	21	Sims	K-D	A.Kent	C	3	103	30x3½	C	620	635	....	865	985	....	....
McFARLAN																	
	6-4½x6	48 6	Bosch	Stmbg	Wsths	DP	3	136	35x5	QDR	3750	3800	3500	....	....	....	....
MERCER																	
22-72	4-3½x6½	22.5	Bosch	Corser	U.S.L.	DD	4	132	34x4½	QDC	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22 5	Bosch	Corser	U.S.L.	DD	4	115	32x4	QDC	3400	Raceabout, 3250	..	....	. ..	. ..	
METZ																	
25	4-3½x4	24	Dixie	A.W.T.	G & D	F		108	32x3½	C	545	545	....	...	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafld	Splitdorf	C	3	120	32x4	SS	1150	1150	....	....	....	....	300x
C-42	6-3½x5	29.4	Conn	Rafld	Wsths	C	3	127	34x4	SS	‡1425	1425	1460	1995	2175	2785	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1495	1495	....	....	....	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1840	....	1840	2490	2440	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinze	Schebler	Heinze	D	3	108	32x3½	SS	795	795	....	....	....	....	....
N-O	6-3½x4½	25.4	Heinze	Stmbg	Heinze	D	3	115	33x4	SS	995	995	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	DC	565	....	....	....	965	....	....
M-4	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	DC	....	985	....	....	....	....	....
MOON																	
6-43	6-3½x4½	25.3	Delco	Rafld	Delco	DD	3	118	32x4	SS	‡1295	1295	....	....	....	....	1450
6-66	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	†1690	....	1690	1690	2350	....	....
MURRAY																	
70-T	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2500	....	2500	....	....	Chassis	2000
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafld	Wsths	C	3	128	34x4½	QDR	†1800	†1750	1750	2400	2350	....	....
Twelve	12-2½x4½	39.7	Delco	Rafld	Bijur	C	3	128	34x4½	QDR	†2200	†2150	2150	2800	2750	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	....	....	....	....	2200	....	....
OAKLAND																	
34	6-2½x4½	18.9	Delco	Marvel	Delco	C	3	112	32x4	SS	‡875	875	....	....	....	....	995
50	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	34x4½	SS	....	....	1585	....	....	....	1020
OLDSMOBILE																	
45	8-2½x4½	26 4	Delco	Johnson	Delco	C	3	120	33x4	SS	1295	1295	....	....	1850	....	1775
46	6-2½x4½	19.8	Delco	Johnson	Delco	C	3	112	32x4	SS	†1095	1095	....	....	....	....	....
OVERLAND																	
85-4	4-4½x4½	27.2	Conn	Titsn	A-Lite	C	3	112	32x4	SS	835	850	....	1250	1450	....	....
85-6	6-3½x4½	25.3	Conn	Titsn	A-Lite	C	3	116	32x4	SS	970	985	....	1395	1585	....	....
OWEN																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	..	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7	Bosch	Zenith	O-M	OM	..	136	35x5	SS	‡3950	†3950	3950	....	....	5000	....
PACKARD																	
2-35																	
2-25	12-3 x5	43.2	Bijur	Own	Bijur	DD	3	135 / 120	35x5	QDC	3050	3050	3050	4150	....	4450	....

*6-passenger, †4-passenger, ‡2-passenger.

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DREXEL																			
R-30-35	4-3½x5	19.6	Bosch	Stmbg	Bijur	C	3	112	33x4	....	985	985	....	....	....	....	....
	4-3½x5	19.6	Bosch	Stmbg	Bijur	D	3	118	34x4	....	....	1650	....	....	....	....	....
ELCAR																			
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS	845	845	†845	....	....	....	....
ELGIN																			
	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	116	33x4	....	†985	985	....	....	....	....	....
EMERSON																			
Four	4-3½x4	22.5	A.Kent	Kngstn	....	D	3	110	30x3½	C	....	545	....	....	....	....	....
EMPIRE																			
45	4-3½x5	24.0	A-Lite	Stmbg	A-Lite	C	3	116	33x4	SS	....	960	....	....	....	....	....
6Q-R	6-3½x4½	25.6	Conn	Stmbg	A-Lite	C	3	120	34x4	SS	†1145	....	....	....	1625	....	....
7Q	6-3½x4½	25.6	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1235	....	....	....	....	....
ENGER																			
12	12-2½x3½	34.2	Wsths	Stmbg	Wsths	DP	3	116	32x4	SS	....	1295	....	....	....	....	....
4	4-3½x4½	21.7	A.Kent	....	....	C	3	106	32x3½	....	....	695	....	....	....	....	....
FIAT																			
55	4-5½x6½	42	Wsths	Zenith	Wsths	D	4	140	35x5	QDC	....	....	5500	....	....	6500	....
56	6-4½x6	45.9	Bosch	Own	Own	D	4	135	37x5	QDC	‡5350	5350	5350	....	....	....	....
FORD																			
T	4-3½x4	22.5	Own	{Holly {Kngstn	....	D	2	100	30x3½	C	345	360	....	505	645	....	....
FOSTORIA																			
	4-3 x4½	14.4	Remy	Zenith	....	D	3	108	30x3½	C	....	695	....	....	....	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	32x4	SS	1800	1850	†1850	2650	2750	3000	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafld	Wsths	D	3	119	34x4	SS	....	1250	....	....	1325	....	....
GRANT																			
K	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	112	32x3½	....	‡875	875	....	1100	1050	....	....
HAL TWELVE																			
	12-2½x5	39.7	....	Stmbg	Wsths	DP	3	135	34x4½	SS	2600	†2600	2600	....	....	4500	3500
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	23.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN	4-3½x5½	16.9	Bosch	Special	Remy	C	3	106	30x3½	....	....	595	....	....	....	....	....
HAYNES																			
36	6-3½x5	29.4	Remy	Rafld	L-N	DP	3	121	34x4	SS	....	1595	....	....	2260	....	....
37	6-3½x5	29.4	Remy	Rafld	L-N	DP	3	127	35x4½	SS	†1725	....	1725	....	2390	....	....
40	12-2½x5	36.3	Delco	Rafld	L-N	DP	3	121	34x4½	SS	....	2095	....	....	2760	....	....
41	12-2½x5	36.3	Delco	Rafld	L-N	DP	3	127	34x4½	SS	†2225	....	2225	....	2890	....	....
HOLLIER																			
186	6-3 x4½	21.6	Remy	Stewart	A-C	C	3	116	32x3½	SS	....	895	....	....	....	....	....
178	8-3 x4½	28.8	A.Kent	Stewart	Aplco	C	3	116	34x4	SS	†1185	1185	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS	1650	....	1650	1950	2175	2925	....
HUPMOBILE																			
	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	119	34x4	SS	1185	1185	....	....	1735	....	....
N-U	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	134	35x4½	SS	....	....	1340	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	875	925	†940	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS	1395	1795	†1495	....	1995	....	1605
350	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	112	32x4	SS	....	1195	....	....	....	....	....
JEFFERY																			
Four	4-3½x5½	22.5	Dixie	Stmbg	Bijur	DP	3	116	34x4	SS	1065	....	1095	....	1260	....	1320
Six	6-3½x5½	29.4	Dixie	Rafld	Bijur	LP	3	125	34x4	SS	1435	....	1465	....	1630	....	1690
JORDAN																			
Sixty	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DD	3	127	35x4½	SS	1650	†1750	1650	2300	2350	3000	....
KING																			
E	8-3 x5	28.8	A.Kent	Ball	W. Lnrd	DP	3	120	34x4	SS	†1585	‡1585	1585	....	2150	....	....
KISSEL																			
642	6-3½x5½	31.54	Eismn	Stmbg	Own	DD	3	128	34x4	SS	....	1650	1850	....	2000	....	....
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	33x4	SS	†1195	1195	....	1635	1950	....	1625
KLINE																			
638	6-3½x4½	25.3	Wsths	Rafld	Wsths	DP	3	120	34x4	SS	1175	1195	†1195	....	....	....	....
LEXINGTON																			
6-O-17	6-3½x4½	25.3	Conn	Rafld	Wsths	DD	3	116	32x4	QD	†1185	1185	....	1350	1350	....	....
6-P	6-4½x5½	40.8	A.Kent	Stmbg	Wsths	C	3	144	36x4½	QD	†2675	....	2875	.....	..	....	....
								132									
LIBERTY																			
6	6-3½x4½	23.4	Delco	Rafld	Delco	DP	3	115	32x4		†1195	1195	....	....	1795	....	....
LOCOMOBILE																			
R-7	6-4½x5	43 3	Eismn	Ball	Wsths	DD	4	139	37x5	QDC	†4750	*4600	4600	....	....	5600	....
M-7	6-4½x5½	48.6	Eismn	Own	Wsths	DD	4	142	37x5	QDC	*5400	....	5400	....	....	6500	....
PAIGE																			
6-38	6-3½x5	23.4	Remy	Rafld	G & D	D	3	117	32x4	SS	1175	1175	....	....	....	....	....
6-46	6-3½x5½	29.4	Remy	Rafld	G & D	D	3	124	35x4½	SS	....	....	1495	....	....	....	....
PARTIN-PALMER																			
20	4-3½x4½	15.6	Conn	Schebler	A-C	DD	3	96	30x3½	C	545	....	....	....	....	....	....
32	4-3½x5	19.6	Conn	Carter	Disco	DD	3	110	32x3½	C	....	695	....	....	....	....	....
PATERSON																			
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	32x4	C	†1095	1095	1095	....	....	....	....
PATHFINDER																			
2B-TC-2C	12-2½x5	39.7	Delco	Stmbg	Delco	DD	3	135	35x5	SS	....	....	3250	....	....	....	....
PEERLESS																			
56-2	8-3½x5	33 8	A.Kent	Special	G & D	DD	3	125	35x4½	SS	†1980	....	1980	2700	2840	3350	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	36x4½	QDC	4300	4300	†4300	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	37x5	QDC	5100	5100	5300	6300	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	38x5½	QDC	†6100	6100	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Zenith	Delco	DP	3	119	32x4	SS	†1200	1200	....	....	....	....	....
PREMIER																			
6-B	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	†1895	....	1895	....	2900	3150	....
PRINCESS																			
4-36	4-3½x4½	22.5	Splitdorf	Schebler	Disco	D	3	108	32x3½	....	775	775	‡775	....	....	....	....
PULLMAN																			
424-32	4-3½x4½	22.5	Dixie	Stmbg	Splitdorf	D	3	114	31x4	SS	825	825	†825	....	....	....	....
REGAL																			
4-32	4-3½x4½	19.6	Heinse	Carter	Heinse	C	3	108	30x3½	DC	....	745	....	....	....	....	....
F	8-3 x4½	28.8	....	Johnson	Dyneto	C	3	115	33x4	SS	1200	....	....	....	....	....	....
REPUBLIC																			
E	6-4½x5	43.3	Delco	Rafld	Delco	C	4	133	36x4½	SS	....	†2950	2950	....	....	....	....
REO																			
M	6-3½x5½	30.4	Remy	Rafld	Remy	DD	3	126	34x4½	SS	....	†1250	1250	....	1750	....	....
R	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS	‡875	875	....	....	....	....	1025
ROAMER																			
R.A.	6-3½x5	23.4	Bosch	Stmbg	Bijur	D	3	127	34x4	SS	2150	1850	....	....	....	....	....
ROSS																			
C	8-3½x5	33.8	A.Kent.	Zenith	W.Lnrd.	DD	3	130	35x4½	SS	‡1550	†1550	1550	....	....	....	....
SAXON																			
B-5-R	4-2½x4	12.1	A.Kent	Rebh	Wagner	DD	3	96	30x3	DC	495	....	....	....	....	....	....
S-4	6-2½x4½	19.8	Remy	Rafld	Wagner	DD	3	112	32x3½	SS	....	865	....	....	....	....	....
SCRIPPS-BOOTH																			
D	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	1460
G	4-3½x4	24.5	Remy	Zenith	Remy	C	3	110	30x3½	C	935	....	....	1450	....	....	....
SIMPLEX																			
5	6-4½x6½	45.9	Eismn	Nwemb	Bosch	D	4	143½	37x5r	QDC	Chassis	6000	....	....	....	....	....
SINGER																			
17	6-4 x5½	38.4	Bosch	Rafld	Wsths	DD	4	136	35x5	QD	3500	†3500	3500	....	....	4600	....
STANDARD																			
8	8-3½x5	33.8	Splitdorf	Zenith	Aplco	D	3	127	35x4½	....	†1950	....	2000	....	....	3500	2500
STANLEY																			
Steamer	2-4 x6	....	....	....	....	..	..	130	34x4½	SS	‡2300	2200	2300	....	....	....	....
STEARNS																			
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	QDC	††1450	1450	....	2050	....	2900	2050
SK8	8-3½x5	33.8	Remy	Rafld	Wsths	DD	3	123	35x4½	QDC	†2150	....	2150	2900	....	3500	....
STEPHENS																			
60-65	6-3½x4½	25.3	Conn	Zenith	A-Lite	DD	3	115	32x4	....	‡1150	1150	....	....	....	....	....
STUDEBAKER																			
SF-4-40	4-3½x5	24.0	Remy	Schebler	Wagner	C	3	112	34x4	SS	‡930	....	940	....	....	....	1140
ED-6-50	6-3½x5	36.32	Remy	Schebler	Wagner	C	3	122	34x4	SS	‡1170	....	1180	1750	1700	2300	1380
STUTZ																			
R	4-4½x5½	36.1	Bosch	Stmbg	Remy	C	3	130	34x4½	SS	2275	†2550	*2550	....	....	....	....
SUN																			
17	6-3½x5	23.4	Remy	Rafld	Remy	DP	3	116	34x4	SS	†1145	1095	1145	....	1295	....	....
VELIE																			
28	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	115	32x4	SS	1115	1135	†1135	1750	1685	....	....
27	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	4	124	35x4½	SS	....	....	1600	....	....	....	....
WESTCOTT																			{2190
S-17	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	1590	1590	1690	....	....	....	{2090
WHITE																			
GAH	4-3½x5½	22.5	Bosch	Own	Own	P	4	115	32x4	QDC	‡2650	2700	....	....	....	....	....
GED	4-4½x6½	28.9	Bosch	Own	Own	P	4	133½	36x4½	QDC	3750	....	3800	....	....	....	....
16-Valve	4-4½x5½	28.9	....	Own	L.N.	P	4	137½	37x5	....	....	....	4600	....	....	....	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	121	34x4½	SS	....	....	1285	....	1950	1950	....
WILLYS																			
88-6	6-3½x5½	29.4	Conn	Tltsn	A-Lite	C	3	125	35x4½	SS	....	....	1325	....	....	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafld	Bijur	DD	4	128	36x4½	QD	2685	2685	2735	3500	3900	3900	....
48	6-4½x5½	48.6	Bosch	Rafld	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4500	4750	4750	....

*6passenger. ††passenger. ‡3passenger.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Tltsn" Tillottson, "Atzr" Atomizer, "Rebh" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myers. NOTE—"37½x5½r" means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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Ohio Plans Membership Campaign

COLUMBUS, OHIO, Feb. 26—Arrangements have been completed by the special re-organization committee of the Ohio Automobile Trade Association to start a vigorous membership campaign about March 1. The plan provides for quite a number of solicitors to go throughout the state and solicit members. The plan is first to set forth the objects of the association in a letter to all of the dealers, etc., which will be followed by personal solicitation. This is to be followed up by letters and in that way it is hoped to quadruple the membership of the association.

Clintonville Dealers Organize

CLINTONVILLE, WIS., Feb. 26—Dealers and garage owners of Clintonville, Wis., have organized an association and adopted a scale of prices for services of all kinds. The members of the new association are: Clintonville Motor Car Co., Service Auto Co., W. B. Stevens, Peotter Bros., and Bernhagen & Poppenhausen. Formal notice of the organization is being published in the Clintonville press, and says:

"We, the undersigned dealers in motor cars and accessories have caused to be formed the Clintonville Automobile Dealers' Association. It will be our aim to help the motoring public to our greatest extent and we ask your hearty co-operation. Through the steady advance in the cost of materials and labor we now are compelled to raise our prices and wish to advise that regardless of the garage to which you may go, the price will be exactly the same. Our object is to treat one and all alike. The following prices have been adopted for the present time:

Storage, per day .....50c.
Storage, per month ..... $4.
Skilled labor, per hour .....75c.
Washing cars .....50c.
Use of wash rack and supplies...50c.

"In conclusion, our notice to you is that the time limit of credit to all responsible parties will be strictly 30 days."

Time-Payments for the West

NEW YORK, N. Y., Feb. 24—The Guaranty Securities Corp. has completed arrangements with the Guaranty Banking Corp., Chicago, by which the latter becomes Middle West correspondent March 1. This will make possible the financing of time payments in the Middle West and Rocky Mountain States. Officers of the Guaranty Banking Corp. are: President, E. S. Maddock; vice-president, Paul Fitzpatrick; vice-president, Howard L. Wymegar; cashier, Joseph M. Eberhardt; assistant cashier, L. S. Coyle; auditor, Fred A. Franklin.

Dart Not Sold to Farmers

EDITOR MOTOR WORLD:—We noticed in some of the recent issues of the trade papers an item to the effect that some farmers at Riceville, Iowa, had traded five Iowa farms for the Dart Motor Truck Co. and were going to run that business. We wish to call your attention to the fact that this report is very erroneous and misleading to your readers. Will appreciate it very much if you will kindly see that the notice is published in your editorial items or news items to the effect that the Dart Motor Truck Co. has not made any such a transfer, but that one of our stockholders did trade about $10,000 worth of his stock to apply on the purchase price of five Iowa farms.

The Dart Motor Truck Co. is still being operated by the same officers and directors as heretofore and will say that it would take considerably more than this number of farms to purchase control. This report getting out to the trade has hurt us in a good many ways and will appreciate it if you will kindly publish notice correcting the impression given.—C. W. Hellen, President, Dart Motor Truck Co., Waterloo, Iowa.

Doble Steamer Prices

DETROIT, Feb. 27—Both the touring and the roadster models of the Doble steam car will sell for $2,500. The touring car will be very similar to the one shown at the National Automobile Show. The wheelbase and the body will be slightly changed, but the power plant will be the same.

Clark to Make Bodies

OSHKOSH, WIS., Feb. 19—The Clark Carriage Co., Oshkosh, Wis., for many years a leading manufacturer of horse-drawn vehicles, is effecting a reorganization and will engage in a large production of all kinds of bodies for motor vehicles. H. M. Clark will remain as president, and the factory management will continue to be in charge of H. M. Foulke.

Coming—THE SHOW CALENDAR—Events

Washington, D. C.	Middle Atlantic Motor Assn., Inc., Union Bldg.	Mar. 3-10
Boston	Fifteenth Annual, Boston Automobile Dealers Assn.; Gen. Mgr.: C. I. Campbell.	Mar. 3-10
Birmingham, Ala.	First, 1823 First Avenue; Henry B. Marks, Gen. Director.	Mar. 5-10
Jamestown, N. Y.	Third Annual, Jamestown Automobile Dealers Assn., Armory; Mgr.: C. A. Hanvey.	Mar. 5-10
Wheeling, W. Va.	Automobile Dealers Assn., Market Auditorium Bldg.; Mgr.; F. A. Henderson.	Mar. 5-10
Bridgeton, N. J.	Second Annual, Bridgeton Automobile Dealers Assn., Preston Calender Plant; Mgr.: J. W. Acton.	Mar. 6-10
Fort Dodge, Ia.	Sixth Annual, White Terminal Warehouse; Mgr.: G. W. Tremain.	Mar. 6-10
St. Joseph, Mo.	St. Joseph Automobile Dealers Assn., Auditorium; Harry E. Mooers, Mgr.	Mar. 7-10
Canton, O.	Motor Car Co. showrooms; Mgr.: P. E. Moock, chairman of committee.	Mar. 7-14
Zanesville, Ohio	Muskingum Motor Club.	Mar. 10-17
Fort Worth, Tex.	Show	Mar. 12-14
Vancouver, B. C.	British Columbia Automobile Assn., Horse Show Building.	Mar. 12-17
Fargo, N. D.	North Dakota and Minnesota Auto Dealers Assn., Auditorium and Armory; Mgr.: W. M. Ball.	Mar. 13-16
Columbia, S. C.	Columbia Automobile Dealers' Assn., A M. Groves.	Mar. 14-17
Mason City, Ia.	Third Annual, Armory	Mar. 14-17
Davenport, Ia.	Coliseum Bldg., Tri-City Automobile Trade Assn.; Mgr.: C. F. Burmeister.	Mar. 14-17
Pittsburgh, Pa.	Salon, Schenley Hotel	Mar. 14-17
Parsons, Kan.	Show, C. H. Moriarty, Mgr	Mar. 14-17
Pittsburgh, Pa.	Automobile Dealers Assn. of Pittsburgh; Motor Square Garden; Mgr., J. J. Bell.	Mar. 17-24
Washington, D. C.	Carnival and Open House Week.	Mar. 19-24
Paterson, N. J.	Sixth Annual Paterson Automobile Dealers Assn., Auditorium; Mgr.: Robert A. Mitchell.	Mar. 19-24
Cedar Rapids, Ia.	Cedar Rapids Automobile Trade Assn., Coliseum.	Mar. 19-24
Denver, Col.	Mammoth Hall. H. F. Blackwell, Mgr.	Mar. 20-25
Trenton, N. J.	Trenton Automobile Trade Assn., Armory; Mgr.: John L. Brock.	Mar. 21-24
Raleigh, N. C.	City Auditorium, John Kelley, Mgr.	Mar. 21-24
Mankato, Minn.	Third Annual, Manakato Retail Automobile Dealers' Assn.	Mar. 22-24
Deadwood, S. D.	Fifth Annual; Mgr.: J. E. Nelson.	Mar. 27-31
Clinton, Ia.	Clinton Automobile Dealers Assn., Coliseum; management: Executive Committee.	Mar. 28-31
Stockton, Cal.	Second Annual San Joaquin Auto Trades Assn.; Mgr.: Samuel S. Cohn.	April 4-7
Spokane, Wash.	Interstate Fair	Sept. 3-8
Milwaukee, Wis.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15

General

Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6

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National

HIGHWAY CARS

Open Touring Car prices:

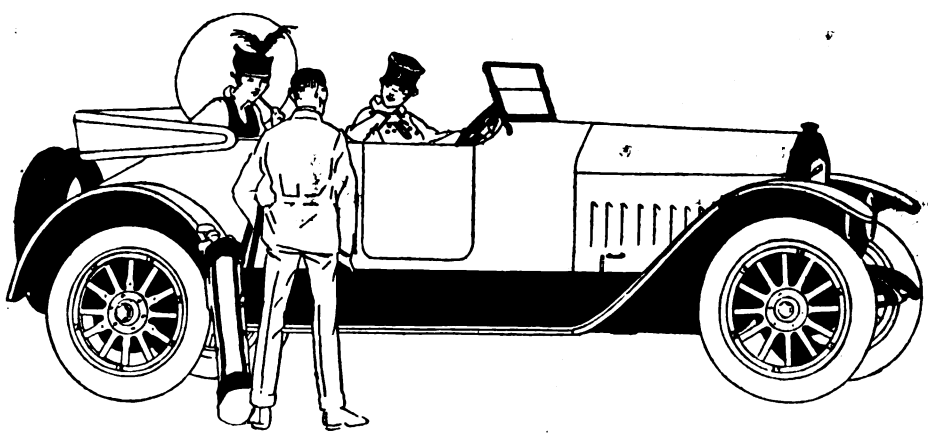
Six Cylinders
$1750

Twelve Cylinders
$2150

Even a public now habituated to unusual motor car performance cannot withhold respectful admiration for the National Highway Twelve. In every phase of automobile service, this car performs with a spirit and surge compelling approval; in any environment it ably upholds the prestige of its owner and its maker. It is a car sumptuously elegant, surely fashionable, realizing true carriage luxury at its climax. Its price is such as to allow uncompromised quality, and yet fall well below what may be termed extravagance.

In general design, in charm of line and beauty of appointment, the National Highway Six mirrors the Twelve, although it costs appreciably less. It is a finely competent car, such a Six as the pioneer maker of American Sixes might be expected to build. In its field, it owns no parallel.

The two-car program of the National, affording as it does a powerful appeal for both the Six — and Twelve—cylinder markets, holds for the alert dealer an advantage and a significance not to be mistaken.



NATIONAL MOTOR CAR & VEHICLE CORP., INDIANAPOLIS, IND.

SEVENTEENTH SUCCESSFUL YEAR

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90%



90% of all the electric pleasure vehicles that are built to-day are operated by the best of batteries—the

DIAMOND GRID

PHILADELPHIA STORAGE BATTERY

40% Longer Battery Life

The same superior qualities that gave the Diamond Grid Battery so remarkable a dominance in the electric pleasure car field also make it the best of batteries for starting, lighting and ignition.

The Diamond Grid Battery is the one starting battery that is proof against the greatest of battery troubles—buckling of the plates under the internal strains that develop inside the battery.

Notice in the illustration above the difference between the patented Diamond Grid and the ordinary Horizontal Bar Grid used in other batteries. The Diamond Grid is braced in every direction against every possible strain, whereas the ordinary horizontal bar grid is supported in only two directions at most. Philadelphia Diamond Grid Batteries last 40% longer—yet they cost no more than ordinary makes.

Dealers: Our enormous business in other types of batteries has heretofore left us without facilities for making Diamond Grid **Starting** Batteries in large quantities. But for years we've been quietly building them and making them prove that they are better than all other starting batteries. Now our new factory gives us the necessary facilities and we are going out to dominate the **starting** battery field just as we dominate other fields. We want you to profit with us in the growth that is ahead. Write us for our proposition.

Philadelphia Storage Battery Co.

Dept. A, Ontario and C Streets

Philadelphia Penna.

Branches in Important Cities

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"I see your car carries a Waltham— I carry one myself!"

The car carries a Waltham Automobile Clock. The man who is going to buy a car carries a Waltham watch—and has a wholesome respect for it. To him "Waltham" is another name for "dependability."

Nothing that the car's salesman can say, and no list of specifications, can do more than the presence of that Waltham clock to convince the prospective buyer that the car's equipment is ***the best.***

This is true, not of one motor car buyer but of thousands, because more than 20,000,000 Waltham watches have been supplied to the world, and are carried by the class of men and women who buy high-grade motor cars.

Waltham Automobile Clock

is an instrument which, like the fine Waltham watches, is supreme in its field. Alone among automobile clocks, it successfully overcomes the handicaps of motoring and ***tells the right time all the time.*** The conclusive reason for this superiority is that the Waltham is the only timepiece built "from the ground up" for automobiles and nothing else.



Consider the following makes of cars which carry the Waltham as regular equipment:

Brewster	Haynes Twelve	Owen Magnetic
Cadillac	**Hudson	Packard
*Cole Four	Locomobile	†Pierce-Arrow
Crane-Simplex	Marmon	Rauch & Lang
Detroit-Electric	Mercer	Stearns
Franklin		Winton

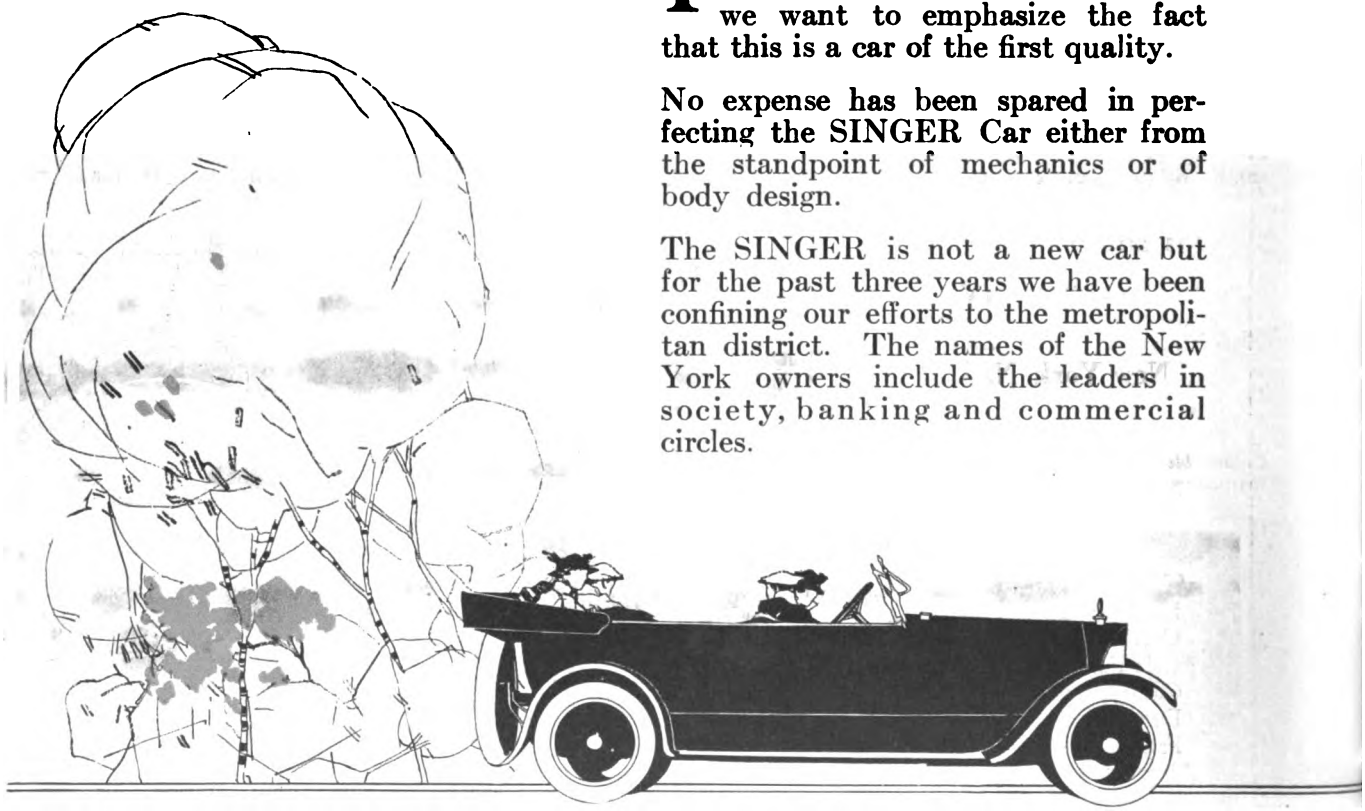
*Sedan, Coupe
**Limousine, Landaulet, Town Car, Landaulet-Limousine
†Enclosed bodies

WALTHAM WATCH COMPANY
WALTHAM, MASS.

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Singer

An Opportunity for An Exclusive Agency



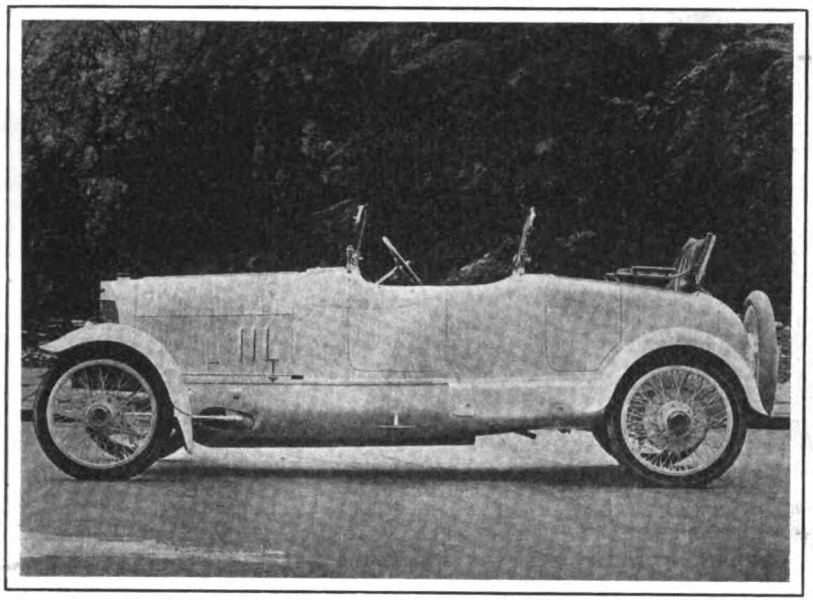
IN offering exclusive SINGER agencies to a few high grade dealers we want to emphasize the fact that this is a car of the first quality.

No expense has been spared in perfecting the SINGER Car either from the standpoint of mechanics or of body design.

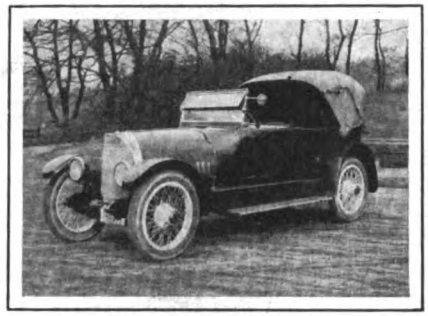
The SINGER is not a new car but for the past three years we have been confining our efforts to the metropolitan district. The names of the New York owners include the leaders in society, banking and commercial circles.

BUILT IN

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4-Passenger Runabout



7-Passenger Touring Car

The Singer Gives Renewed Significance to Luxury and Individuality

THE chassis is constructed to secure maximum balance and harmony. It is designed with profound engineering skill and built by expert mechanics. Each part has been carefully selected for its effectiveness and strength.

The six cylinder motor is highly refined and extremely powerful. Springs of extra length, with compound cantilever suspension in the rear, give the car exceptional riding qualities.

The chassis sells for $3000. Roadsters and touring bodies $3800. Limousines and and Broughams at $4750. Landaulets at $4850. Special bodies are built and equipped to order.

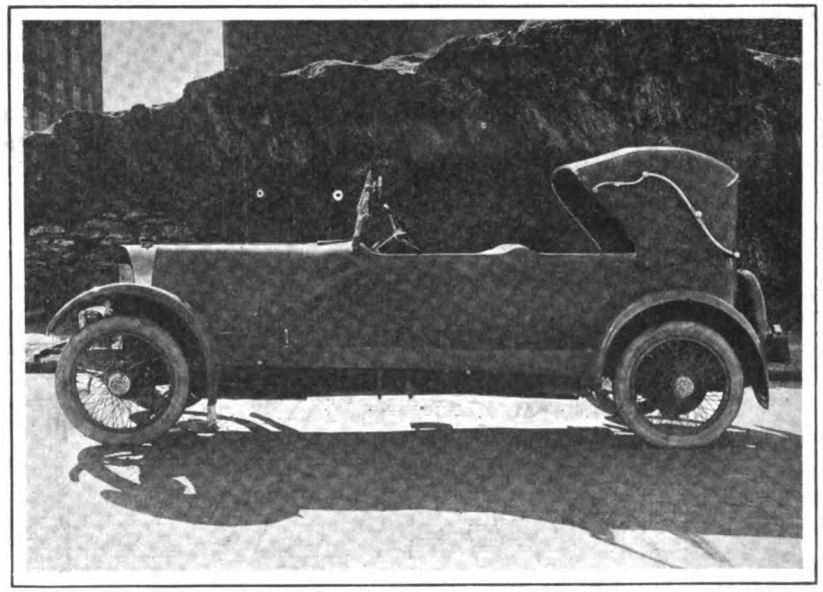
In every community there are possible buyers for a car of the exclusive character of the Singer. An agency for this car is a valuable business opportunity. We are extremely careful to whom we entrust the the reputation of the Singer car.

The SINGER MOTOR COMPANY desires to communicate with suitable dealers, men who have the experience and the facilities to deal with exclusive customers.

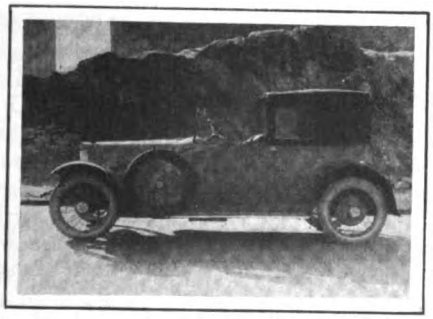
Singer Motor Company

64th Street and West End Avenue
New York, N. Y.

4-Passenger Sporting Type

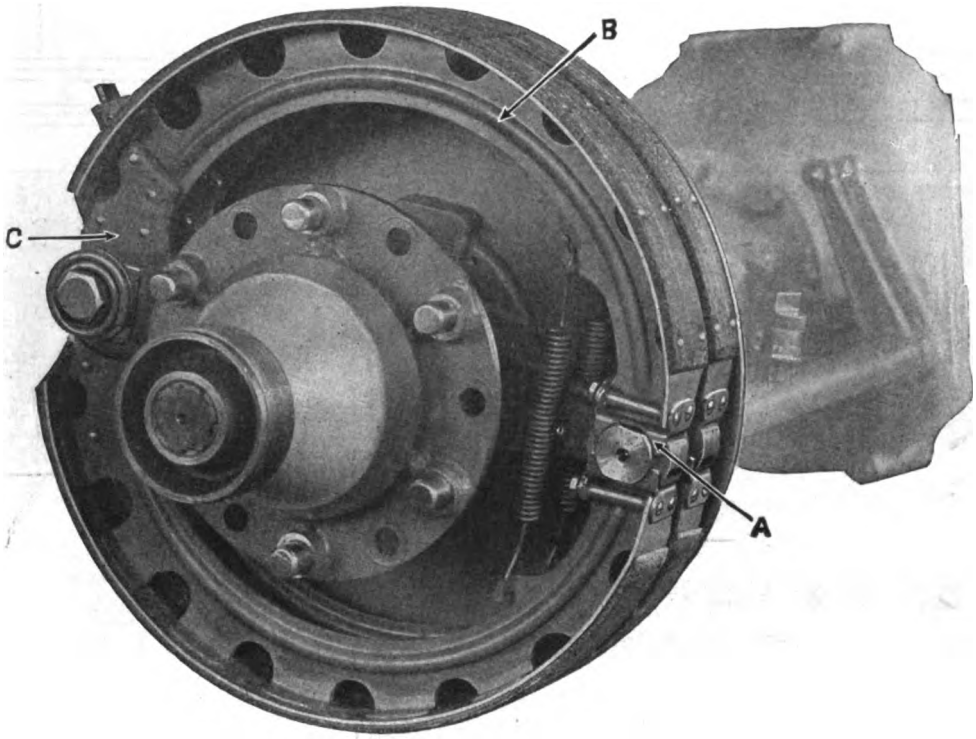


Collapsible Brougham



NEW YORK CITY

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American Axles

Again Speaking of Brakes—

A. That part of brake shoe coming into contact with rectangular brake block is hardened and replacable.

B. The main part of brake shoes is pressed from sheet steel, materially decreasing the weight under that of cast shoes ordinarily used.

C. The centering and aligning parts of brake shoes are machined from drop forged steel.

Made by the Pioneer Axle Builders of America

Licensed under The Kardo Company Patents

First to introduce pressed steel into motor axles; **First** in the successive improvements that have counted most in axle manufacture; naturally, "American" Axles are First in the refinements that make for Less Weight and Greater Efficiency.

The American Ball-Bearing Company

Cleveland, Ohio

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STEPHENS SIX

"The Car With The Punch"



The Hand that Rocks the Cradle Points Out the Car You Buy

In motor marts the woman exerts a powerful influence on sales.

"Her word" is often the "last word" in the automobile-buying transaction. The woman is a discriminating shopper and a shrewd purchaser—an excellent judge of values and a connoisseur of beauty. She demands comfort and refinement; they are hers by the divine right of the ages. She makes sales or breaks sales at will.

The car that appeals to the wife, the mother or the daughter rides on the high crest of the popularity wave.

The Stephens Six Has the Woman Appeal

Powerful and sturdy, with a motor that neither stalls in traffic nor protests on steep grades and in deep mud and sand, the Stephens Six gives the woman a feeling of security and protection. Every part is strongly built of carefully selected materials. The brakes hold when applied. **In the Stephens Six the woman knows that she will reach her destination safely and without annoyance.**

Comfort is another quality of the Stephens Six that the woman appreciates. There are no jolts on rough roads, no side sway at high speed. The springs are extra long, totaling 91 inches in length for a 115-inch wheelbase. The weight is evenly distributed and the center of gravity low. The seats are deep and roomy, leather upholstered.

The Stephens Six has charm of appearance as well as charm of performance. The streamline body, finished in dark blue with gold striping and ivory wheels, is a blending of artistic curves, distinctive and refined. The appointments are in perfect taste.

For the woman who drives, the adjustable brake and clutch pedals have a special appeal. A man's strength is not required to raise or lower the one-man top. The adjustment of side curtains is quick and easy.

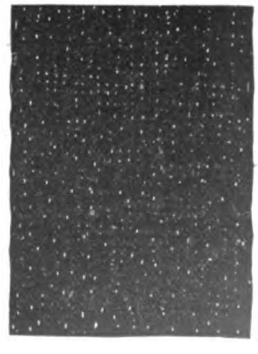
On the open road, in the shopping district, at the country club, the woman finds the Stephens Six a willing and responsive servant, a car of charm in which she may have a justifiable pride.

TWO MODELS
Each $1225
Five-Passenger Touring Car
Three-Passenger Roadster

STEPHENS MOTOR
Branch of Moline Plow Co
MOLINE, ILLINOIS
Factory: Freeport, Ill.

Our Dealer Proposition is most attractive. There is still some good territory open

$1225
FREEPORT, ILL.



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MART FIRS TRADE

DO you realize the significance of this?

Do you every carry children in your car?

Don't you ever hurt yourself pottering around the machine?

How about infection. What are you going to do to head it off? "The world knows to-day that in serious accident or minor hurt the greatest danger lies in germ infection. Even little scratches when not cleansed with an efficient antiseptic or when bandaged with a cloth not aseptic (surgically clean) may develop inflammation, gatherings and grave illness."

Better buy a MARTINKIT and have in your car exactly what you need for such emergencies, neatly packed in a small box, conveniently carried in the door pocket, ready for instant use.

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"Quick, Daddy! I've Pinched My Finger In The Door!"

This kit costs but $2.00, and contains everything needed not only for cuts, scratches, burns and other minor injuries, but also for bad wounds and lacerations.

Accident insurance companies and leading surgeons have collaborated in the assembling of the MARTINKIT for automobile use. It will surely save you pain and discomfort, and there have been numberless cases where its use would have prevented the loss of fingers, limbs, and even life itself.

Ask your own physician about this.

DEALERS and Jobbers find this a quick seller. Every motorist needs one, and Truck Owners find them an actual necessity under the Employers' Liability Act. Write us for attractive terms.

The Martin Auto Accessories Corporation

Rochester, New York

T AID KIT

MARK



Distributors:

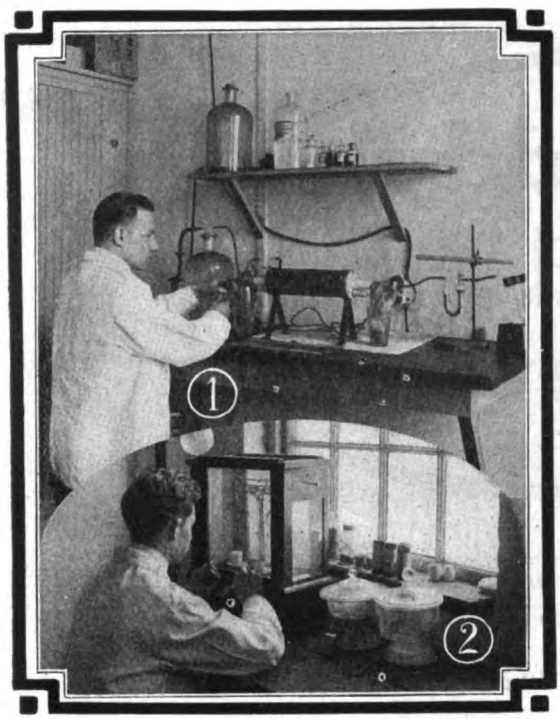
Hughson & Merton, Inc.,
530 Golden Gate Ave.,
San Francisco, Cal.,
Distributors for the Pacific Coast.

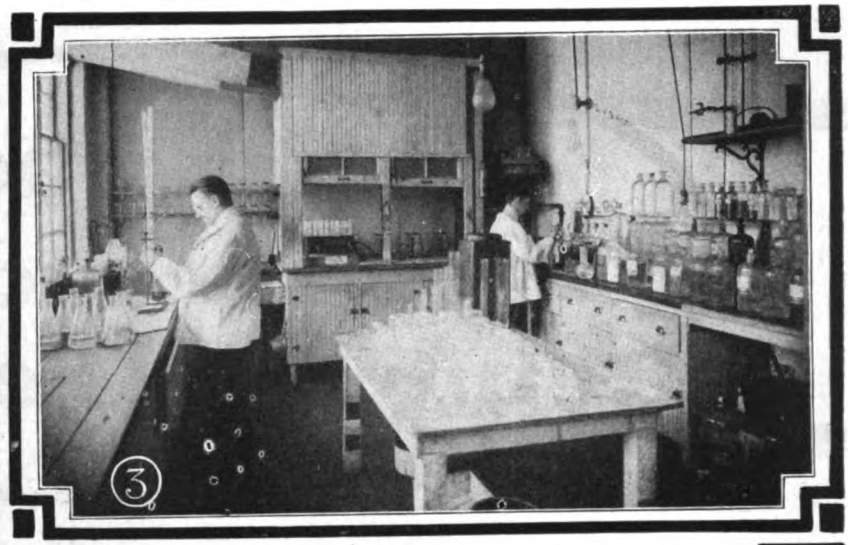
Bacrog Accessories Co.,
Richmond, Va.,
Distributors for Virginia, North Carolina and District of Columbia.

The Martin Auto Accessories Corp., O. L. Butler, Mgr.,
Baltimore, Md.
Distributors for Maryland.

The Banner Tire & Supply Co.,
Euclid and East 19th Sts., Cleveland, Ohio,
Distributors for Cleveland.

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1—*Furnace for testing carbon in different grades of steel.*
2—*Delicate weigh scales—so delicate they will weigh even your eye lash.*
3—*A corner in the Briscoe Laboratory.*

Great Value—
Because of *Great* Carefulness

Scientific Carefulness marks the manufacture of every detail of every Briscoe Car. We accept no materials that do not pass our infallible weighing and chemical tests. All metals must be of exactly the correct weight or hardness specified for each part—must be of absolute uniformity.

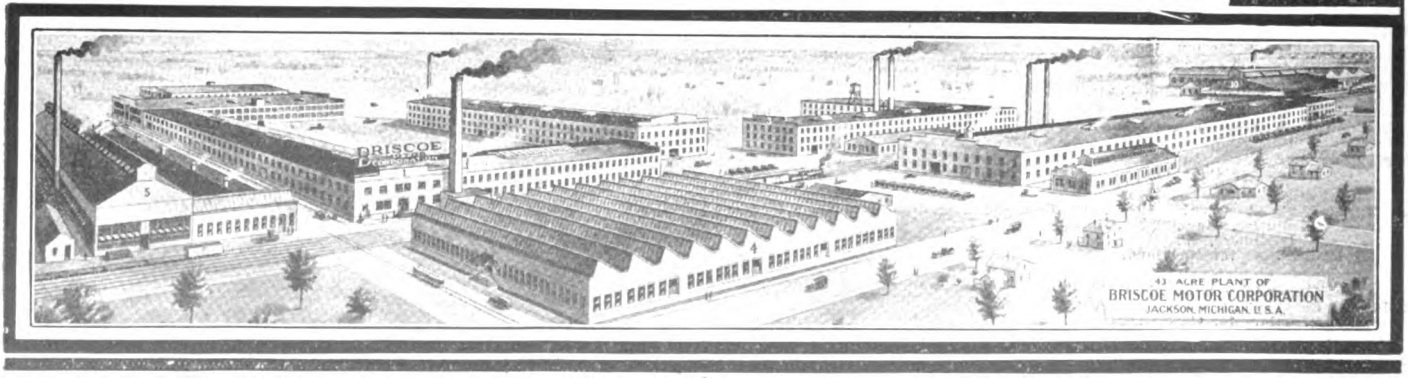
Building the Briscoe entirely ourselves, we secure hundreds of savings because of big production. The result is the big value in the latest Briscoe at $685.

A Great Dealer's Proposition

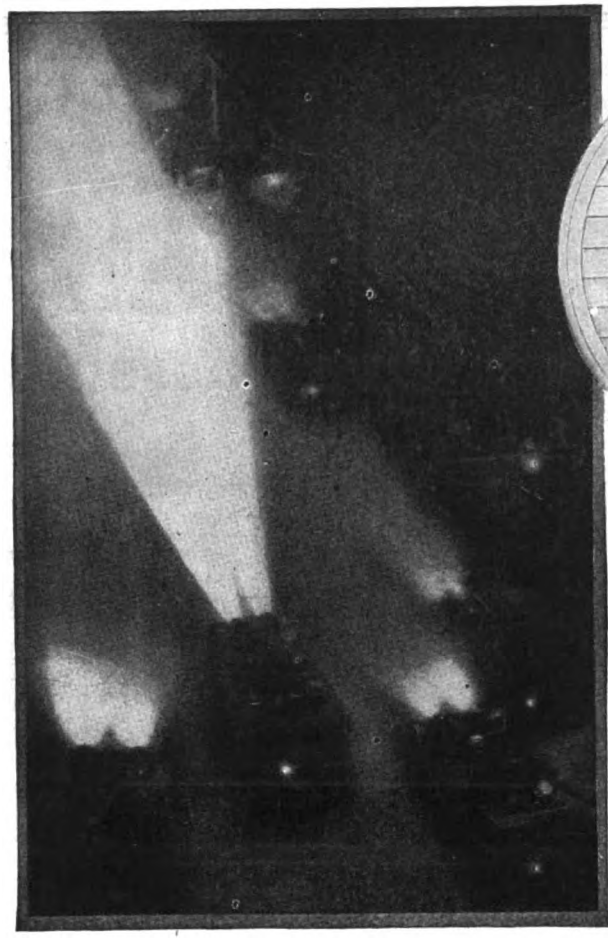
First, a larger profit per car than on similar-priced cars. Then the co-operation of these ten titanic factories and a large organization with the success habit. Clinch your territory. Write to learn of Briscoe dealers' great sales records.

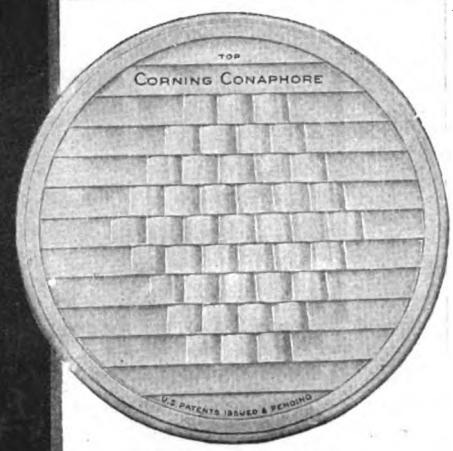
BRISCOE MOTOR CORPORATION, Dept. 40, Jackson, Mich.

BRISCOE $685
The Car With The Half-Million Dollar Motor FULLY EQUIPPED



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Front view of Corning Conaphore

Right Through the Fog

See the car with Corning Conaphores speeding along through the fog at 25 to 30 miles an hour. Cars with ordinary headlights creep along at 10 to 15 miles an hour behind a blinding blur.

Pierces Fog and Dust

The Only Headlight Glass that Does

One foggy night ten cars left the Exmoor Country Club, Chicago. Nine of them—equipped with ordinary headlights—crept nervously along at ten miles an hour behind a blinding blur.

Only one car could make any speed in the fog. It sped along at 25 miles per hour. Its headlights shot a low, strong, golden beam through the fog for several hundred feet. This car sped along this golden path swiftly and safely. It was equipped with Corning Conaphores.

The Corning Conaphore is a new scientific headlight glass which pierces fog and dust. It is the *only* headlight glass that can do this.

How Noviol Glass Causes Light to Pierce Fog

The reason the Corning Conaphore has this exclusive fog-piercing feature is that it is made of Noviol Glass.



No Glare. Light never more than 42 inches above road.

Noviol glass is a patented golden-tint glass. It was invented and perfected by scientists in the laboratories of the Corning Glass Works, Corning, N. Y. This company is the largest manufacturer of technical glass in the world. It makes practically all the signal glass used on all American railroads.

Noviol Glass absorbs the blue and violet rays that are the chief cause of back-glare. This does not decrease the efficiency of the light, but increases it. Only motorists who have ridden behind Conaphores in a heavy fog can realize what this wonderful feature means.

Wonderful Range in Clear Weather

On foggy nights the Corning Conaphore is the only headlight glass that gives any range at all. On clear nights it has a range of 500 feet or more and has absolutely no glare. The light is on the road where you want it; there is ample side light. Because of the golden-tint of the Noviol beam, the bushes, ditches, etc., along the roadside stand out clearly.

In design the Corning Conaphore is scientific, yet simple. It has a smooth outer surface which never gets clogged with dust or snow, and a series of horizontal corrugations on the inner face. These corrugations bend down the light and shoot it out in a long beam, never more than 42 inches above the road. Thus all state and city no-glare laws are complied with.

Also Made in Clear Glass

Corning Conaphores are made of clear glass as well as Noviol Glass. Clear glass Conaphores are equally efficient in giving long range and preventing glare, but lack the added advantages possessed by the Noviol Glass of eliminating back-glare and penetrating fog or dust. We strongly recommend the Noviol.

Easy to Install

You will find the Corning Conaphore easy to install. Simply take out the glass now in your headlight and put the Conaphore in its place. Sizes are made to fit all cars. In ordering give name, model and year of your car, and diameter of your present headlight glass. All progressive dealers now sell Corning Conaphores. Put a pair on your car today.

Price List

Noviol Glass	Per Pair	Clear Glass	Per Pair
3 to 4⅞ in. incl.	$1.30	3 to 4⅞ in. incl.	$0.80
5 to 6⅞ in. incl.	2.40	5 to 6⅞ in. incl.	1.60
7 to 8⅜ in. incl.	3.50	7 to 8⅜ in. incl.	2.50
8⅜ to 10 in. incl.	4.50	8⅜ to 10 in. incl.	3.00
10⅛ to 11⅜ in. incl.	6.00	10⅛ to 11⅜ in. incl.	4.00

Prices 25c more per pair west of Rocky Mountains.
Sizes vary by steps of ⅛ inch.

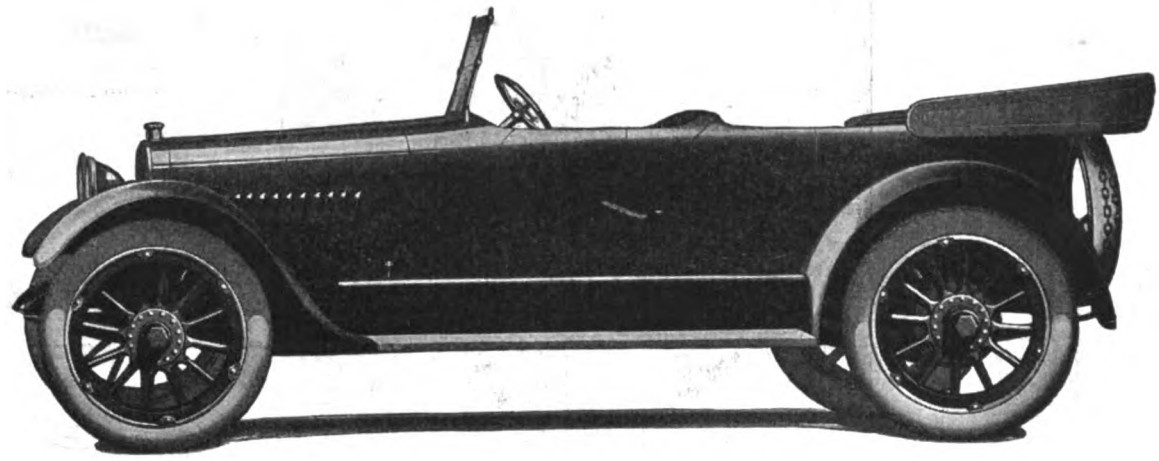
CORNING GLASS WORKS
Corning, New York
CONAPHORE SALES DIVISION
EDWARD A. CASSIDY CO., Inc., Mgrs.
Foster Bldg., 40th St. and Madison Ave., N. Y. City

CORNING CONAPHORE

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MONITOR

Six Cylinder, Five Passenger, $1095



The Utility-Beauty Car of the Year

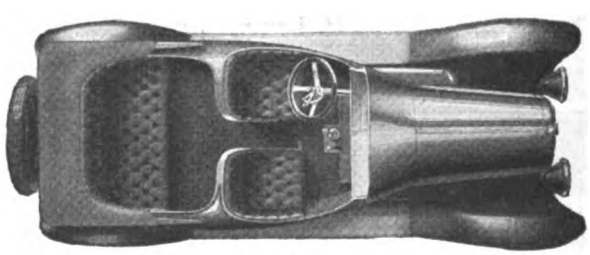
IN Monitor Cars you find not merely beauty of designs and finish—not merely utility alone, but a combination of both, at a price that easily makes the Monitor Agency the biggest opportunity in the motor car field today.

THE MONITOR is the happy medium between extremes. The Chassis represents the peak of mechanical excellence. Monitor bodies —and body designs—provide luxury and comfort in full keeping with the chassis.

Monitor Six Five Passenger Touring..$1095
Monitor Six TUOR-FOUR Roadster $1095
Monitor Four Five Pass. Touring $ 895
Monitor Four TUOR-FOUR Roadster $ 895
Monitor Six Sedan.....$1295
Roadster and Touring Bodies are interchangeable on 4 and 6 cyl. chassis.

THOUSANDS of motor car buyers have waited for this Monitor TUOR-FOUR Roadster Model pictured here. There is actually room to stretch your legs in the rear compartment. Four passengers can *tour* in this roadster with limousine comfort.

THE buying public is ripe for the new standard of value the Monitor ushers in. Territory is fast being assigned, and, while our production schedule is enormous, we advise you to write or wire us your reservation at once. We will gladly tell you more about the Monitor line and a *new* and *better* selling policy that guarantees *prompt deliveries.*



The Monitor Motor Car Company COLUMBUS OHIO

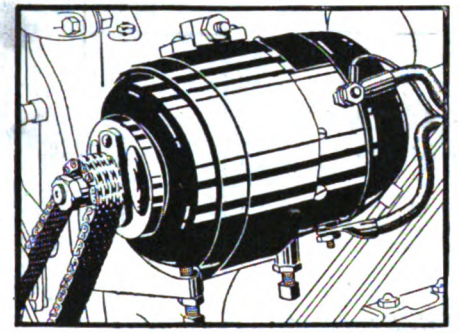
A Million Dollar Corporation

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Genemotor

Trade Mark

"It Starts Your Ford and Lights It Too"



ONE HALF of all motor cars are FORDS—nearly everyone in your city is a prospect for the GENEMOTOR STARTING AND LIGHTING SYSTEM. Will you or someone else sell them?

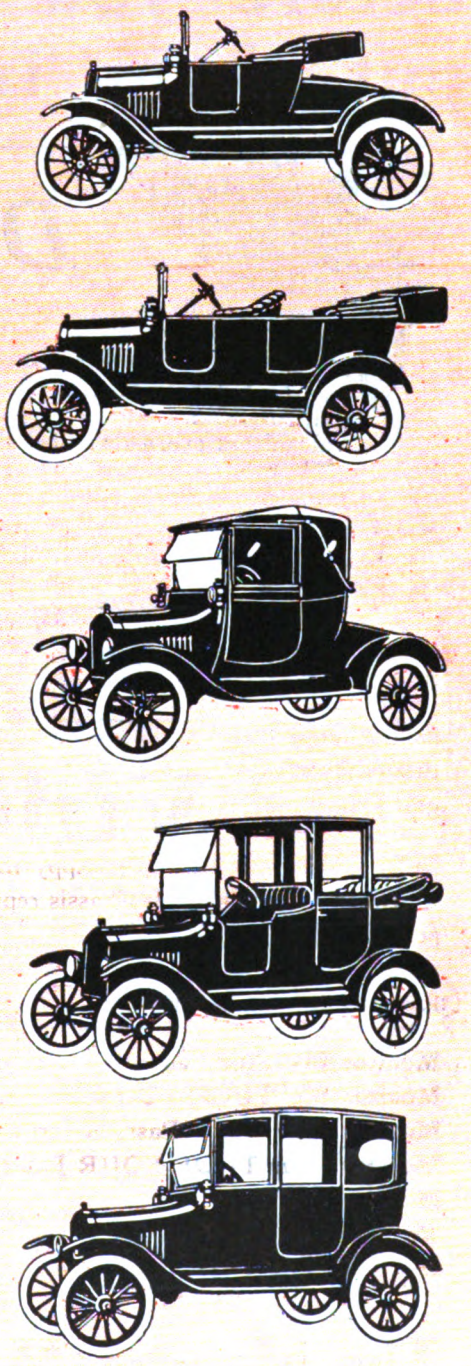
The new GENEMOTOR is chain drive, weighs but forty pounds and can be installed in less than five hours.

Prompt delivery of all orders guaranteed. "U S L" Battery Standard Equipment.

BUILT BY THE
General Electric Company
Price $85.
F. O. B. Lynn, Mass.

Sold Everywhere

A. J. PICARD & CO.
General Distributors
1721 Broadway New York City



Five Ford Models but only **One Genemotor**

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Nationally Advertised to Motorists. Half sold before you put them in stock.



Dealers:

The Shaler is the only vulcanizer advertised to your customers. You may have heard of other makes, but motorists don't know a thing about them. Our advertising is selling hundreds of vulcanizers every day—for dealers who carry them in stock. There is good profit in the vulcanizer itself and you make as big a profit on the repair material necessary as you do on the patches and gums you are selling. Your customers are going to give these profits to some dealer. Why not you? Remember, no car is equipped with a vulcanizer, so the motorist must BUY one somewhere.

SHALER Vulcanizers

They are designed to be carried in the tool box for making emergency tube repairs that are permanent. In addition they mend small casing cuts, which if neglected would let in dirt and water to rot the fabric and cause blowouts. Your reputation for selling good tires will be increased with every customer who cares for his tires with a Shaler.

Every Shaler you sell helps you sell more, because the user tells his friends about the successful results it gives him.
Shaler Vulcanizers retail from $2.00 up. There are models for every need, heated by gasoline, alcohol, steam or electricity.
We also make vulcanizing plants for repair shop use.

Write To-day for Catalog and Terms

Send coupon for our new complete catalog—dealers' discounts, terms for handling Shaler Tourist Vulcanizers.

C. A. SHALER CO.
408 Fourth St., Waupun, Wis.

Canadian Distributors
JOHN MILLEN & SON, LIMITED
Toronto, Winnipeg, Montreal, Vancouver

Mail Coupon for Catalog!

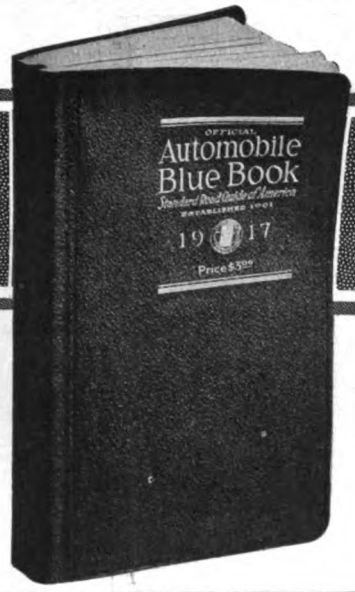
C. A. SHALER CO.
408 Fourth St., Waupun, Wis.

Please send me new Catalog Shaler Vulcanizers—Dealers' Prices, Terms, etc.

.....

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150,000 Motorists will buy the 1917 Automobile Blue Book this year

At $3.00 per copy this means $450,000 to be paid for Blue Books in 1917

How Much of this $450,000 *are you*, Mr. Dealer, *going to get?*

—3,347,532 people in the United States own automobiles—one out of every thirty-three.

—thousands of motorists—90% of those that tour—would no more think of starting off on a trip without a BLUE BOOK than leaving their spare tires at home.

—we are going to reach a great percentage of the 3,347,532 motorists through a big advertising campaign in the Saturday Evening Post, Collier's, Motor Life, Literary Digest and other standard publications of large circulation.

—hundreds of thousands of motorists know the AUTOMOBILE BLUE BOOK as the standard road guide of America.

—the sale of a 1917 AUTOMOBILE BLUE BOOK builds another $3.00 sale next year and every year for years to come.

—twelve scout cars, en route the better part of every year, make the route information in the AUTOMOBILE BLUE BOOKS authentic and up to date. This service costs us many thousands a year.

—an AUTOMOBILE BLUE BOOK is as necessary to a tourist as gasoline or oil.

From Anywhere to Everywhere

there is a BLUE BOOK to Guide Your Way

OUTLINE OF 1917 VOLUMES

Volume 1—New York State and Adjacent Canada. Including Long Island, and adjacent States.

Volume 2—New England and Maritime Provinces. Including Long Island, New York City and Eastern New York State.

Volume 3—New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia and West Virginia.

Volume 4—Michigan, Indiana, Ohio and Kentucky.

Volume 5—Illinois, Minnesota, Wisconsin, Iowa and Missouri. Including Upper Peninsula of Michigan.

Volume 6—The Southeastern States. Including Virginia, West Virginia, North and South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana and Tennessee, with extension routes into adjacent States, including Washington, D. C., to New York City.

Volume 7—Montana, Wyoming, Colorado, New Mexico, Texas, North and South Dakota, Nebraska, Kansas, Oklahoma, Arkansas and Louisiana.

Volume 8—The Pacific Coast States. Including California, Oregon, Washington, Idaho, Nevada, Utah and Arizona, with extension routes into New Mexico, Colorado, Wyoming and Montana.

Volume A—New York City Metropolitan Blue Book. Including 150 round trips within a radius of 100 miles of New York City—half-day, full day, week-end and three-day runs.

Volume C—Chicago Metropolitan Blue Book. Including 150 round trips within a radius of 100 miles of Chicago—half-day, full-day, week-end and three-day runs.

Each book uniform in size and binding; genuine blue leather. Each $3 net.

Take Advantage of the Big Demand for 1917 AUTOMOBILE BLUE BOOKS

Don't let your competitor make sales that ought to be yours. We are being deluged with advance orders from dealers who have sold Blue Books for years. They are ordering from 20 to 400 per cent more than last year.

Our big advertising campaign is going to mean dollars in your pocket if you will tie up your store to it and "cash in" on the money **we** are spending.

You can't expect to fill the demand for 1917 AUTOMOBILE BLUE BOOKS if you do not have them in stock.

If you want to be sure of a stock when the books are published better order them now.

Paper and leather for binding are difficult to obtain at any price and after first editions are exhausted we may not be able to deliver for some time.

Profit? There is big profit in 1917 AUTOMOBILE BLUE BOOKS if you buy them now. In view of the daily changing conditions in the paper and leather market we reserve the right to change discounts without notice.

Right now is the time to place your order to insure delivery by publication dates. The time to sell AUTOMOBILE BLUE BOOKS is all through the touring season, but the time to order them is now.

OUR LIBERAL DISCOUNT SCHEDULE

Quantity	Discount	Net Price to Dealer	Dealer Profit on Every Book
1 to 6	30%	$2.10	$ .90
7 - 24	1/3	2.00	1.00
25 - 49	1/3 & 5%	1.90	1.10
50 - 99	1/3 & 7 1/2%	1.85	1.15
100 - 499	2/5	1.80	1.20
500 - up	2/5 & 2 1/2%	1.75½	1.24½

Discounts determined by the quantity on each individual order.

No rebates. No re-orders at price of initial order. One scale of discounts to everyone in the trade, on a fair and equal basis throughout the year. Books will be delivered from nearest point—New York, Chicago or San Francisco. **The above discounts subject to change without notice.** Send your order in **now** to the nearest office.

The Automobile Blue Book Publishing Co.

Chicago	New York	San Francisco
900 So. Michigan Ave.	243 W. 39th St.	Pacific Bldg.

There is only one way to tour and that is with a Blue Book

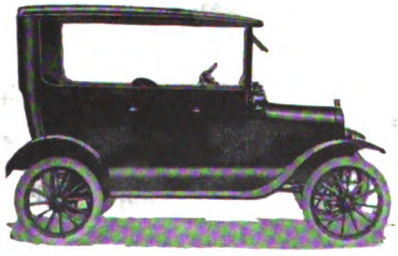
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A Masterpiece of Coachbuilding This All-Weather Sedan Top FOR FORDS

UNIVERSAL HOSKYNS ALL-SEASON-TOP

For Fords $125



A distinguished looking open car whenever you want it.

Study the unretouched photograph above. It is hard to believe that this stylish-looking sedan at the curb is a Ford—which has been transformed into a handsome, comfortable closed car by the simple attachment of a HOSKYNS All-Season Top.

No one who has never seen it done would think it possible to work such a remarkable change in the body lines of the Ford car at such little expense.

The addition of a HOSKYNS top sets your Ford car in a quality class apart from the 1,800,000 other Fords.

For only $125—the price of a HOSKYNS Top—$500 can easily be added to the appearance, convenience and year-'round utility of any Ford touring car. You have a car to be proud of—one which, rain or shine, sleet or snow, will take you any place you care to go in style, in comfort. You have a warm closed car for continuous winter service; by raising the windows (which fold tightly to the roof) you have a cool, wide open car of handsome lines for summer motoring.

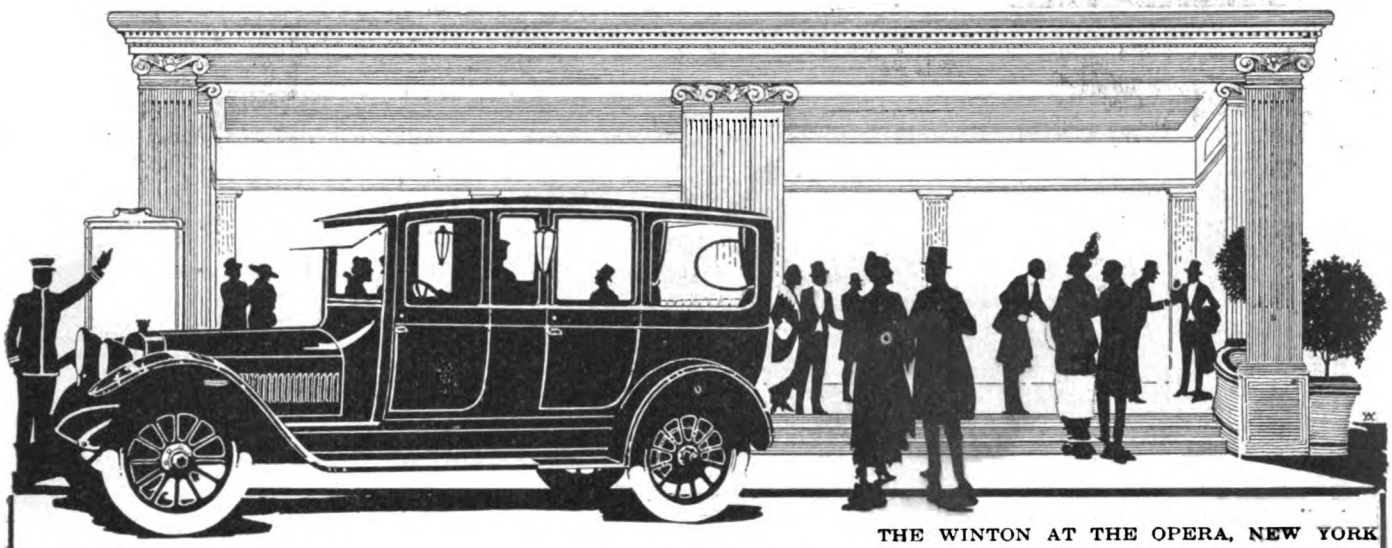
Features: Light, sturdy, rattle-proof construction, handsome straight line panel effect, highest grade coach finish. Neatly tailored weather-proof cloth upholstery, heavy clear crystal glass in windows and ventilating-type windshield, readily attached by anyone.

Price, complete, ready to put right on, **$125.** Write direct for circular giving full particulars.

Dealers Wanted Everywhere

Universal Motor Products Co.
448 N. Capitol Avenue
INDIANAPOLIS INDIANA

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THE WINTON AT THE OPERA, NEW YORK

BOSCH

A REAL SELLING ARGUMENT

DEALERS! You will find "Bosch" a selling force not to be sidetracked when you desire to close the sale quickly and satisfactorily.

Bosch is an argument in itself—it is not necessary to argue in its favor; it speaks for itself; it adds quality and added value to whatever motor car uses it.

Every veteran motorist knows the value of Bosch Ignition; he knows that all the better motor cars and motorcycles are fitted with Bosch, and he looks, and tells his friends to look for Bosch on the automobile that is about to be bought.

You serve yourself and your customers best when you give them Bosch.

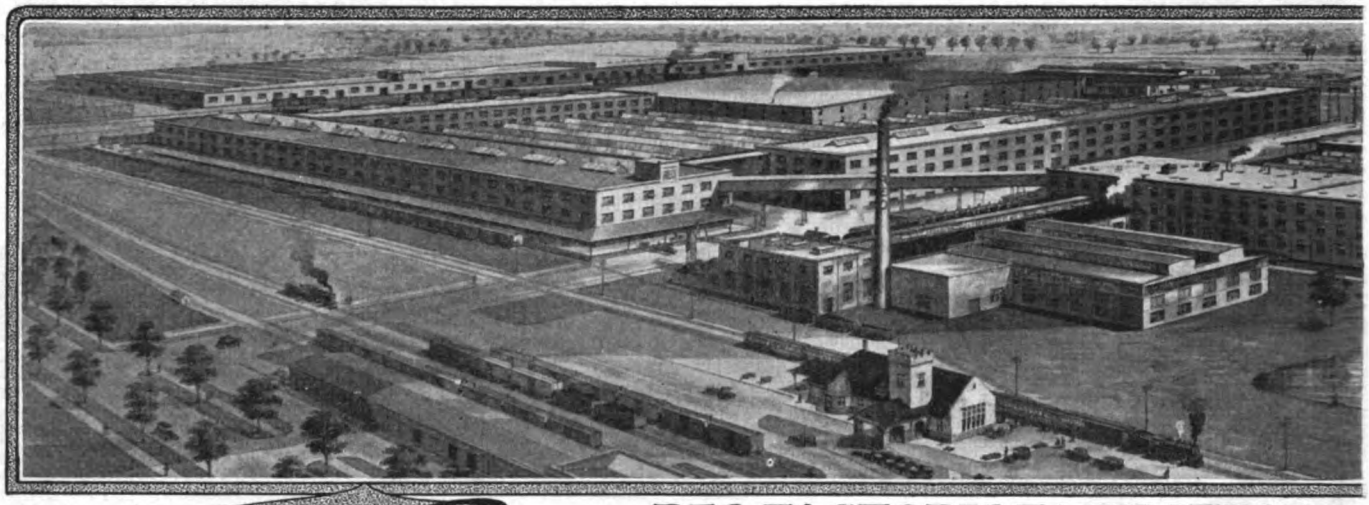
BE SATISFIED SPECIFY BOSCH

The Best Races of 1916
were all Bosch Victories

BOSCH MAGNETO COMPANY

224 WEST 46th STREET NEW YORK CITY, N. Y.

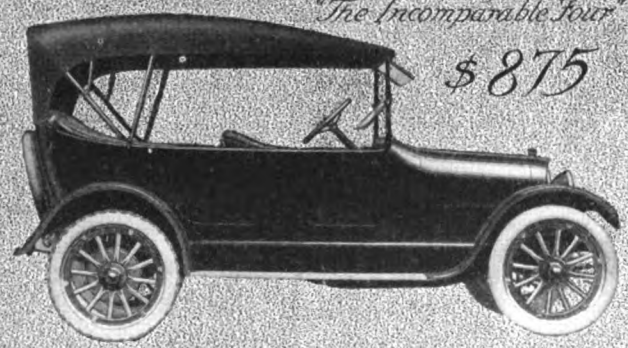
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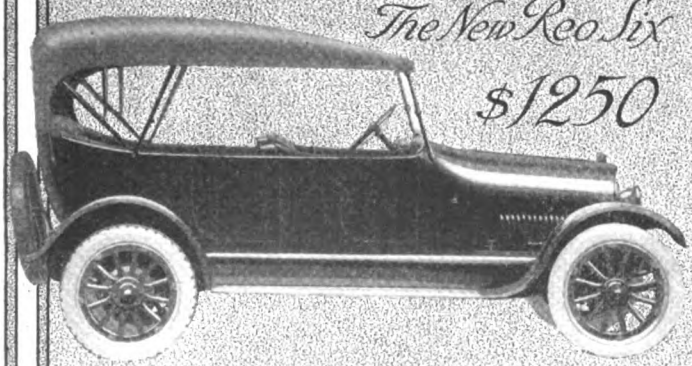
REO FACTORY FACILITIES~

REO

The New Reo the Fifth
"The Incomparable Four"
$875



The New Reo Six
$1250



All prices are f.o.b. Factory, Lansing, Michigan and are subject to increase without notice

The "Open Door" Shops—

IF YOU COULD VISIT US at Lansing and spend a day or a week going through this big 40-acre factory, you'd learn more about Reo quality than we can ever hope to tell you in Reo advertisements.

FIRST, YOU'D GET ACQUAINTED with us Reo Folk—and we think you'd say after a visit that this organization is sincere and earnest in its desire to make, not the most, but the best automobiles and motor trucks.

THEN WE'D SHOW YOU through the splendid Reo laboratories where the Reo chemists and metallurgists analyze and develop and finally test all metals that go into Reos.

THESE LABORATORIES are unsurpassed by any in this industry—excelled by few, if any, in the world, in point of equipment and thoroughness of results.

OF COURSE YOU'D MEET the Reo engineers and body designers; and you'd find them not poring over new models, but seeking to bring to a point still nearer perfection, those Reo models that are already standard.

THEN YOU'D UNDERSTAND what now is so difficult to credit—the wonderful longevity and the low up-keep cost of Reos.

PROPOUND ANY QUESTION you like to these engineers and in the reply you'll find food for thought—and you'll agree that Reo engineering is sound engineering.

THEN IF YOU HAD TIME we'd take you through the entire plant—all units shown in the picture. It's about a 16-mile walk if you go down every aisle and see every operation.

AND EVERY FOOT OF THE WAY you'd find something interesting, something to approve—something that would indicate to you the quality that is Reo.

BUT IF YOU HADN'T more than a day to spend we'd show you only the major operations—

REO MOTOR CAR CO.

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THE BASIS OF REO QUALITY

You Are Always Welcome

and you'd see some modern miracles of manufacturing.

WE CANNOT IMAGINE a more profitable day, or a more instructive ten days, than you could spend here in the Reo plants.

FOR YOU'D LEARN not only how good automobiles and dependable motor trucks are made, but you'd appreciate as never before what tremendous strides have been made in the past few years in the allied sciences of metallurgy and of manufacturing.

COME ANY TIME—you are cordially invited. Make the visit whenever best suits your own convenience—for we Reo Folk are always here—always the same—and always glad to meet any Reo owner, prospective owner or dealer.

FOR, BY THE WAY, the Reo Motor Car Company is owned and manned by home folk—Lansing folk. No absentee directors control this business.

ANY PROBLEM, no matter how vital or how trifling, can be and is, decided right here—and on the moment. The directors can be called into conference in five minutes.

PERHAPS that's another reason for Reo quality, Reo success. We think so.

THE FIRST IS Good Intent. Then comes Experience—oldest in the industry. Next, Intelligence—we may modestly claim this in the light of our success.

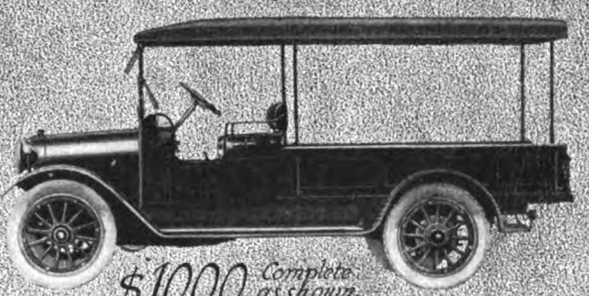
THEN FACTORY FACILITIES, second to none, which enable us to make every part according to the specifications and up to the standard set by Reo engineers.

AND FINALLY (or shall we reverse the order?) the fact that we can and do decide all questions right here and without red tape or delay.

COME AND SEE US. The latchstring is always out.

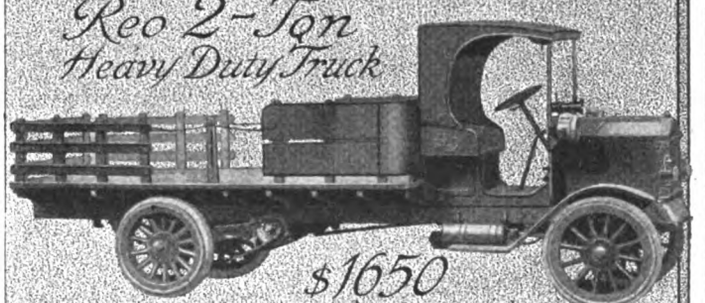
"THE GOLD STANDARD OF VALUES"

Reo 3/4-Ton "Hurry-Up Wagon"



$1000 Complete as shown

Reo 2-Ton Heavy Duty Truck



$1650 Chassis with driver's seat and cab

All prices are f.o.b. Factory, Lansing, Michigan and are subject to increase without notice

LANSING, MICHIGAN

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COLD? Yes! But NO OIL TROUBLES

SUPREME AUTO OIL

Flows Freely at Zero—Starts With the Engine

No possibility of scored cylinders when you use such an oil.

SUPREME AUTO OIL is manufactured from Southern Asphalt Base Crude, containing no paraffine to gum and stick.

This affords better facilities for quick starting.

Dealers should write us.

GULF REFINING COMPANY

The Largest Independent Refining Company in the World

General Sales Offices: Pittsburgh, Pa.

District Sales Offices:

New York Philadelphia Boston Atlanta Tampa New Orleans Houston

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$100 More April First

Another $100 will be added to the price of Cole Eight Touring Cars and Roadsters, April first.

The sales of these two models have increased so greatly in spite of a similar advance in price which became effective January first that we are already forced to put into their production materials which we did not think we would be called upon to use until July first.

And these new materials we have been obliged to buy at the present higher prices.

Consequently, we are forced to increase the prices of our Touring Cars and Roadsters ninety days ahead of the date originally set.

Our contemplated production of 10,000 Cole Eights for 1917 will not be disturbed however.

And cars purchased prior to April first may be had at the present prices.

Cole Motor Car Co.
Indianapolis, U. S. A.

Seven Passenger Cole Eight Touring Car . .	$1695
Cole Eight Tuxedo Roadster	$1695
Cole-Springfield Four-Door Toursedan . . .	$2495
Seven Passenger Cole-Springfield Toursedan .	$2295
Four Passenger Cole-Springfield Toureoupé .	$2295

Prices f. o. b. factory

Touring Cars and Roadsters Subject to $100 Advance April 1st

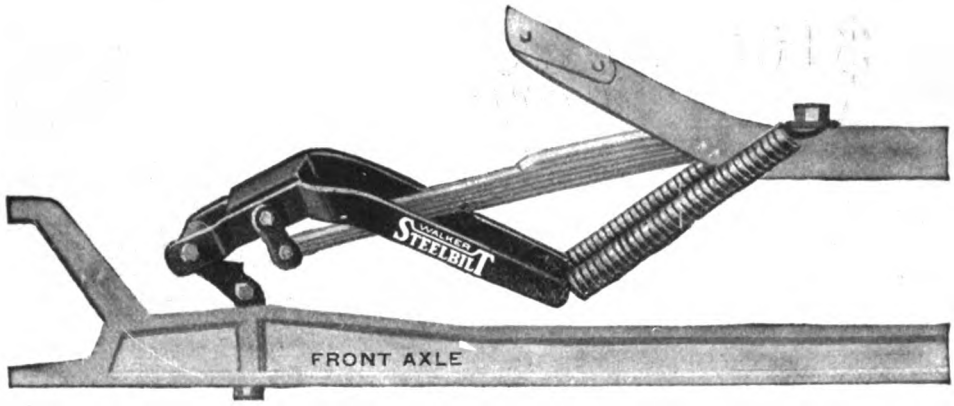
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At Last! An All Steel

$7.50 A SET of FOUR

WALKER STEELBILT

DOUBLE CANTILEVER SHOCK ABSORBER



Lighter—Stronger—More Efficient

Here is a Shock Absorber for Ford Cars that is superior in quality, durability and service to any Ford Shock Absorber on the market today.

Walker Steelbilt Double Cantilever Shock Absorbers are made of steel throughout—arms, rear perches, hooks and bolts. They are light, strong and unbreakable.

The springs are made of special oil tempered spring wire and are extra long. This gives them an elastic play such as is offered by no other similar shock absorber.

Thousands of Ford owners, many of whom have been using more expensive shock absorbers, are now choosing the **Walker** in preference to all others.

The **Walker** has proved that $7.50 is enough for a Ford Shock Absorber. Tested under the severest conditions it has conclusively demonstrated its ability to absorb road shocks and jolts and turn them into a pleasing motion that adds to the delight of riding.

Dealers send this

Made by WALKER MANUFACTURING CO., 438 Wisconsin Street,
MAKERS OF THE FAMOUS

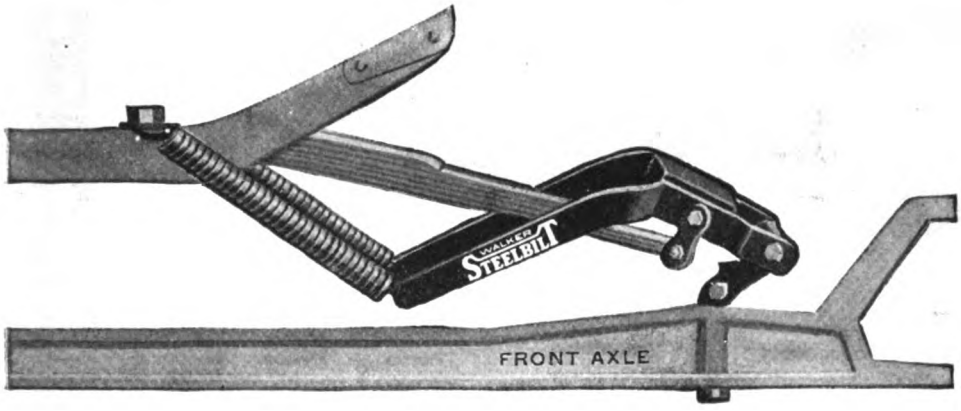
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Shock Absorber for Fords

WALKER STEELBILT

$7.50 A SET of FOUR

DOUBLE CANTILEVER SHOCK ABSORBER



Easy, Satisfied, Profitable Sales

There are 1,700,000 Fords in actual use today. 800,000 more will be sold in 1917. Hundreds of these are right in your community. They are looking for just such a shock absorber as the **Walker Steelbilt Cantilever Shock Absorber.**

Our consistent advertising in the leading motor publications is convincing Ford owners everywhere of the superiorities of this shock absorber and will mean *easy* sales for you.

Every set you sell means a *satisfied* customer. One who will endorse these shock absorbers as well as your service to his friends. This will mean not only an ever increasing demand for these exceptional shock absorbers but also an increased sale for *every* accessory you handle.

And don't overlook the profits. **Walker Steelbilt Shock Absorbers** offer you a margin of profit that is bound to interest you.

Mr. Dealer, Ford owners everywhere are realizing that the **Walker** is superior to all other absorbers regardless of price. Its wonderful performance is making it the sensation of the Ford Accessory field.

Write today for our attractive dealer proposition. Cash in on this big demand. Let the **Walker** tell its own story in increased sales and bigger profits for you.

Coupon today

RACINE, WISCONSIN
BADGER JACKS

WALKER MFG. CO.
438 Wisconsin St., Racine, Wis.

Gentlemen:—Without any obligation on my part, kindly send me full particulars of your dealers' proposition on Walker **All-Steel** Double Cantilever Shock Absorbers.

Name.....

Address.....

City..... State.....

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KELLOGG

Engine Driven Tire Pump



It is Easy to Equip These Cars

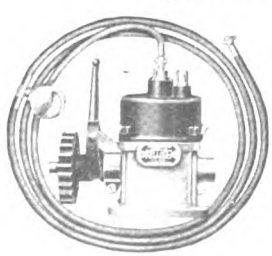
Buick
Case
Chalmers
Chandler
Davis
Dodge
Empire
Hudson
Hupmobile
Jeffery
Kissel
Moon
Oakland
Oldsmobile
Overland
Paige-Detroit
Reo
Ross
Studebaker
Stutz

And Many Others

Make the Kellogg Engine Driven Tire Pump an Important Sales Talk on Tire Economy and Convenience

Why do you suppose nearly thirty car manufacturers furnish the Kellogg Pump as regular equipment?

You dealers who can furnish the Kellogg not as regular but as extra equipment should see that every car that comes into your garage for service goes out with the Kellogg installed.

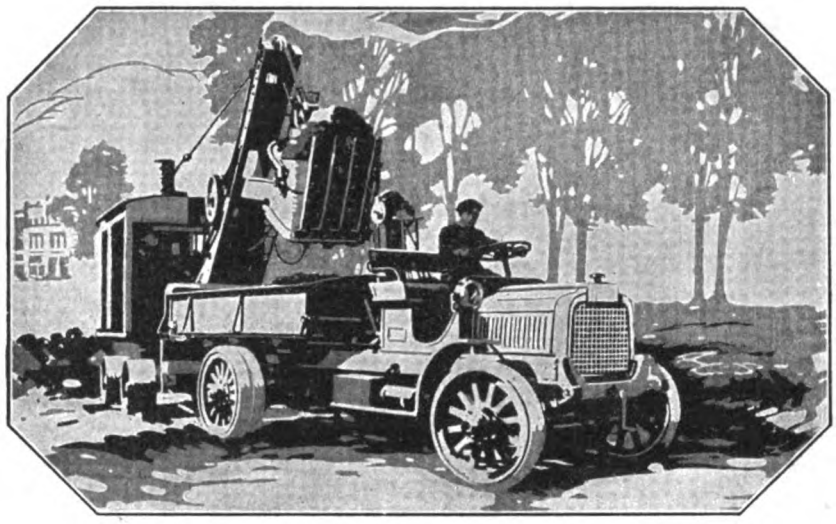


Send name and model of your car and ask for particulars.

KELLOGG MFG. CO., Rochester, N. Y.

Branches and Distributors in All Principal Cities

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Eight Years of Truck Success

U. S. Motor Trucks have been built, sold and successfully operated for eight years.

More U. S. trucks are bought to-day than ever before in the history of the business. The last six months' demand has increased the production 300 per cent.

It's coming fast. Each month adds to the evidence that buyers want and insist upon U. S. trucks.

Over 50 per cent of the men and businesses who have bought one U. S. truck have later bought additional U. S. trucks. Many have added truck after truck until great fleets are in operation in many parts of the world.

Here is proof of success, evidence of stability, assurance of satisfaction for present purchasers of U. S. trucks.

The United States Motor Truck Company is a strong business organization, directed by men who have been successfully engaged in similar businesses for 30 years.

The Floating Power Plant—an exclusive U. S. feature—economizes power and increases the life of U. S. trucks.

Worm Drive, 2½, 3½ and 5 ton. Chain Drive, 2½ and 3½ ton.

Many U. S. truck dealers are selling trucks at the rate of 100 or more a year, some as many as 300 a year. We have some excellent territories available just now. If you are thinking of making a connection, write us about your plans. Perhaps we can help you.

The United States Motor Truck Co.

CINCINNATI, OHIO

U S
MOTOR FLOATING POWER PLANT TRUCKS

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Whether the primary consideration be for beauty or for protection, for cleanliness or for convenience, for low first cost or for long-run economy, the choice of the most experienced dealers and the most discriminating car owners is overwhelmingly for WARNER Auto Upholstery Covers.

We make them to fit every car and every purse. Catalog, Price List and Swatches on request. Write today.

The Warner Auto Top Company

ESTABLISHED THIRTY YEARS

1640-1644 Central Avenue Cincinnati, Ohio, U. S. A.

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The Test that Showed Over 59% Greater Gasoline Mileage With the Wilmo Manifold

Scene — Lincoln Park, Chicago. Date—Thursday, January 25th, 1917. Temperature —15 above zero. Road conditions—Ice and snow. Weather—"Blizzardy."

Present—Gathering of representatives of Chicago newspapers and national automobile publications. Their attitude —"Show me."

Car used — Ford, License No. 172017, Illinois. Owner —W. T. Magrane, 5704 Washington Blvd., Chicago.

Speed of tests 20 miles an hour.

Using regular factory equipment only, 14 4-10 miles to the gallon were obtained.

Then a Wilmo Manifold was attached in a few minutes by means of an ordinary monkey-wrench.

With the Wilmo Manifold 23 miles to the gallon were obtained—a gasoline mileage increase of 59 6-10% as against the mileage made with regular equipment only.

Following right on the heels of other official tests made under the direction of L. A. Hillman, Chicago, technical representative of the American Automobile Association, and which showed an increase in gasoline mileage of 42% to 54% as a direct result of Wilmo Manifold efficiency, this "newspaper man" test has an added appeal to you as an automobile man.

Shorn of details, the Wilmo Manifold utilizes the heat of the exhaust gases to superheat and completely vaporize the incoming mixture so that every vestige of gasoline is converted into clean, full-bodied power.

And in addition, practically all carbon troubles are eliminated. The diagram below tells the story.

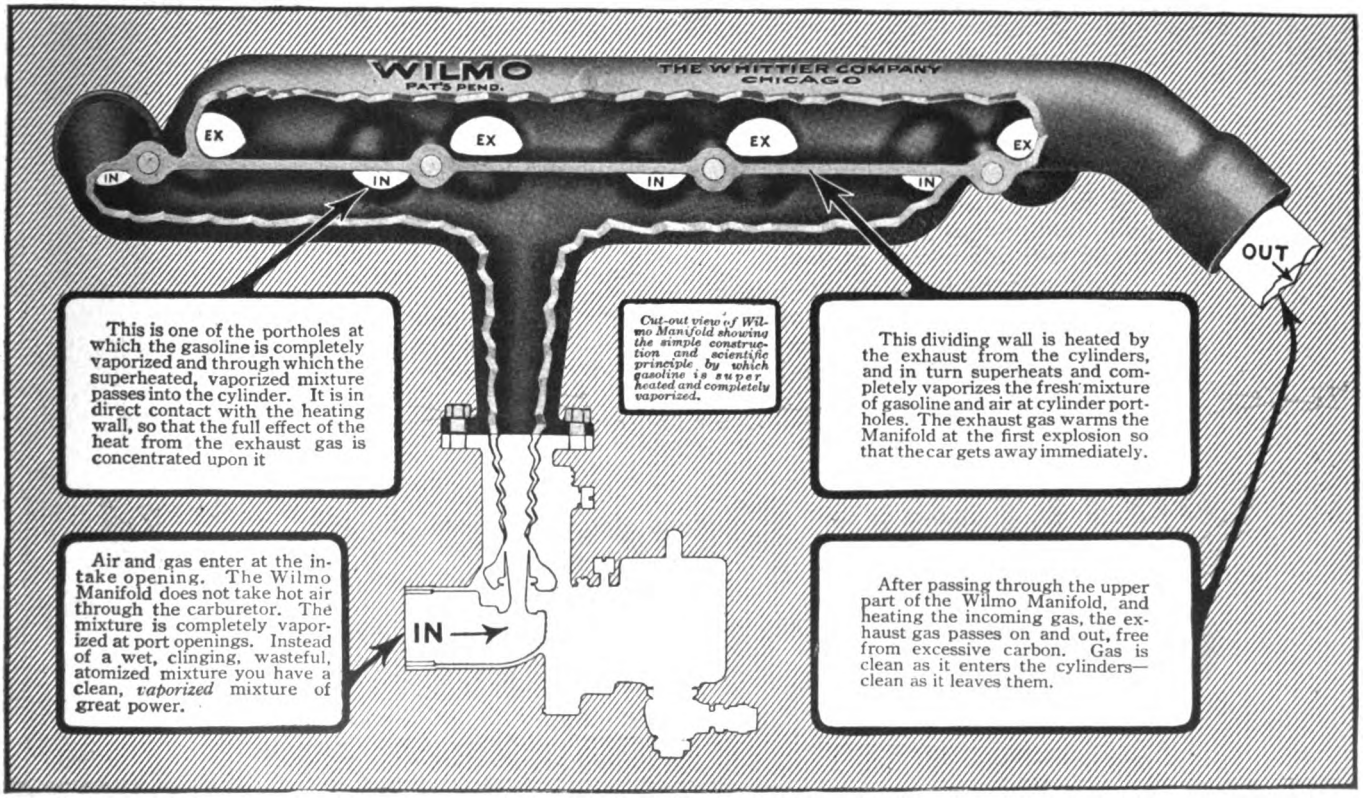
The Wilmo Manifold is being nationally advertised in the country's foremost publications. Sales are made through dealers—through *you*.

Retail prices, $7.50 to $15, depending on the make of car.

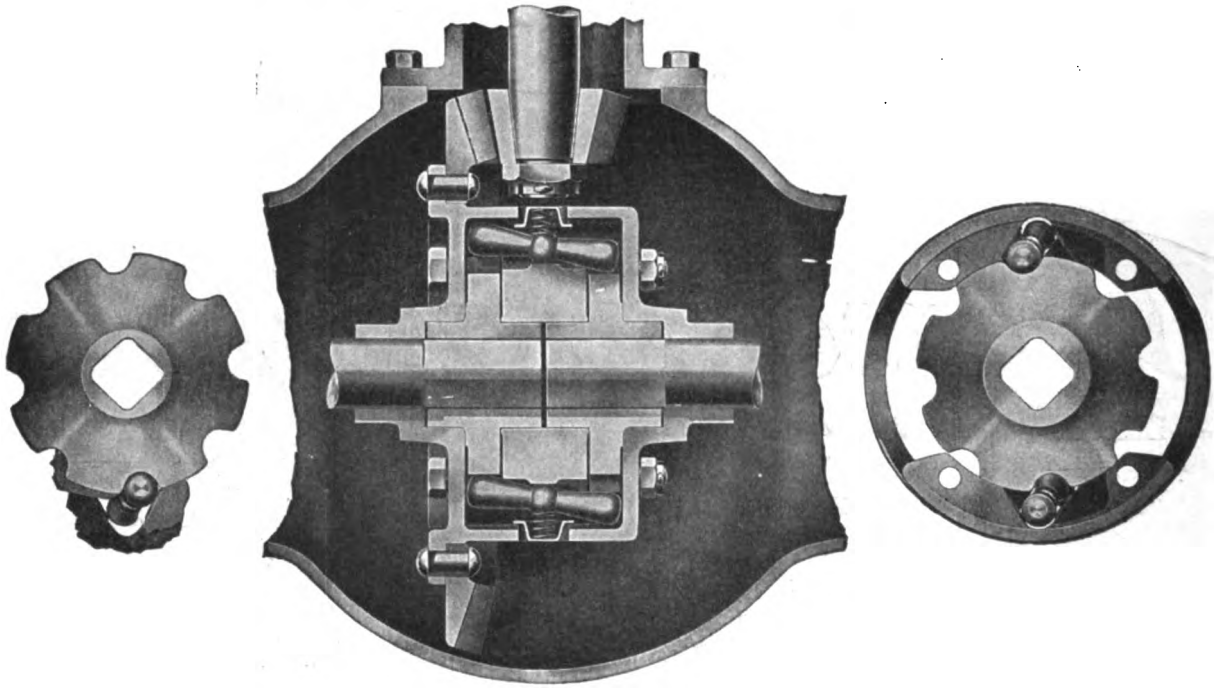
Attached to the engine in thirty minutes with a monkey-wrench. No holes to bore.

A year 'round seller. A money maker and prestige builder for you. Write today for all official tests, prices and dealer plan.

The Whittier Company
First National Bank Building, Chicago, Ill.



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THE BAILEY NON-SKID NON-STALL

DIFFERENTIAL

Gives positive traction and requires no change in housing or bearing layout

Send for The Bailey Non-Skid Non-Stall Differential and put it into your testing car. Drive it through mud, slush, snow, sand and over wet asphalt and you will find a steady straight forward pull that keeps the car moving ahead **with all wheels in line.**

You will find the compensation perfect in turning corners and on straightaway you will **not** have the wheel spinning, sidesway and skidding that always accompany an ordinary geared differential.

Our extensive plant permits us to meet the quantity requirements of any builder, and we stand ready to back this Gearless Differential with every reasonable performance guarantee.

Safety, confidence and comfort of owners in your cars demand that you start your investigation soon.

Licensed under patents of the
Gearless Differential Company of Detroit, Mich.

N.P.R.H. REG U.S. PAT OFF

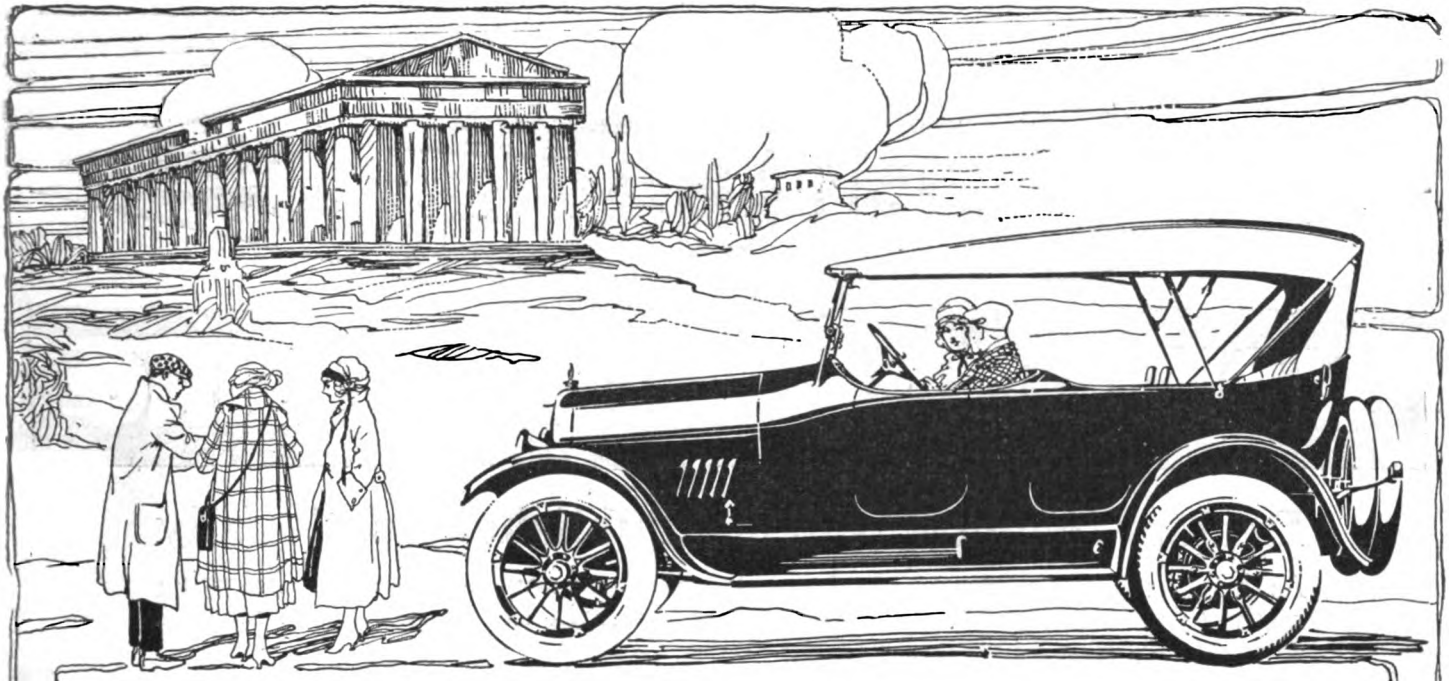
NEW PROCESS GEAR CORPORATION

N.P.R.H. REG U.S. PAT OFF

SYRACUSE, N.Y.

133

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The Westcott Six

Built to Endure

ENDURANCE has always been a distinguishing characteristic of Westcott construction.

The second ten thousand miles of Westcott travel are, if possible, even smoother, more silent, more luxurious than the first ten thousand. Westcott Sixes retain their "pep" and set the pace from get-away to finish.

A Westcott of the present series will be a source of delight after years of service because endurance is built into every part of the Westcott Chassis and into every detail of the Westcott Bodies.

Structural Details

Springs are of chrome vanadium steel throughout with bronze Bushings. Timken Axles and Brakes. All Bearings Timken. 15" Brake Drums 2¼" wide. Sliding gear selective type Transmission of over-size construction with *roller bearings at both ends of main shaft*. Westcott-Continental Motor 3½" bore x 5¼" stroke. Cast Aluminum Crank Case. Heat treated drop forged Crank Shaft has tensile strength of 90,000 lbs. per sq. in. Final Drive through two Spicer Universal Joints with tubular shaft. All torquing strains relieved by double tubular torque arm. Delco 2 unit Electric System. All wiring in metal armor without a splice or tape. Willard Batteries (120 ampere hour). No. 1 long grain Leather Upholstery. One-man top with invisible reinforcement taking all stretching and strain from the genuine Pantasote outer covering.

With all these elements of strength and endurance and every detail of convenience and luxury consistent, the Westcott Six is well within the means of the average buyer.

Five Passenger Touring Car . .	$1590	Seven Passenger Touring Car . .	$1690
Four Passenger Cloverleaf Roadster	$1590	Five Passenger Touring Sedan .	$2090
Seven Passenger Touring Sedan		$2190	

Prices f. o. b. Springfield, O.

THE WESTCOTT MOTOR CAR CO.
SPRINGFIELD, O.

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"as old as the industry"

CREW LEVICK
NATIONAL ADVERTISING

Dealers' Names Will be Published Nationally

As the next step in a great co-operative plan, we have now completed the following method for enabling the dealer to also participate in the Crew Levick national advertising to the consumer.

A special assortment of Crew Levick Motor Specialties has been worked out, based on the average dealer's requirements.

This is known as "Assortment C," and the name and address of every dealer who has ordered or who now orders this, or a larger assortment, before March 25th, will be published in *The Saturday Evening Post*, issue of April 21, 1917.

The 2,000,000 circulation of *The Saturday Evening Post* has been estimated to represent nearly ten million readers, and every order developed from this enormous number will be placed with the dealers listed.

Have you received offer and proposition on "Assortment C"? You *may* not want to accept it, but you will not want to miss *seeing* it, at least, for this is the biggest piece of co-operative sales help ever offered the dealer.

We offer to *advertise YOU nationally.*

You will see how big a thing this is *for you* if you will mail the coupon below for details.

Crew Levick Company
2203-31 Land Title Building, Philadelphia



Mail this Coupon for Details

Crew Levick Company
2203-31 Land Title Building
Philadelphia

Gentlemen:

Without obligation please send me by next mail complete details of your plan to list dealers in your national advertising.

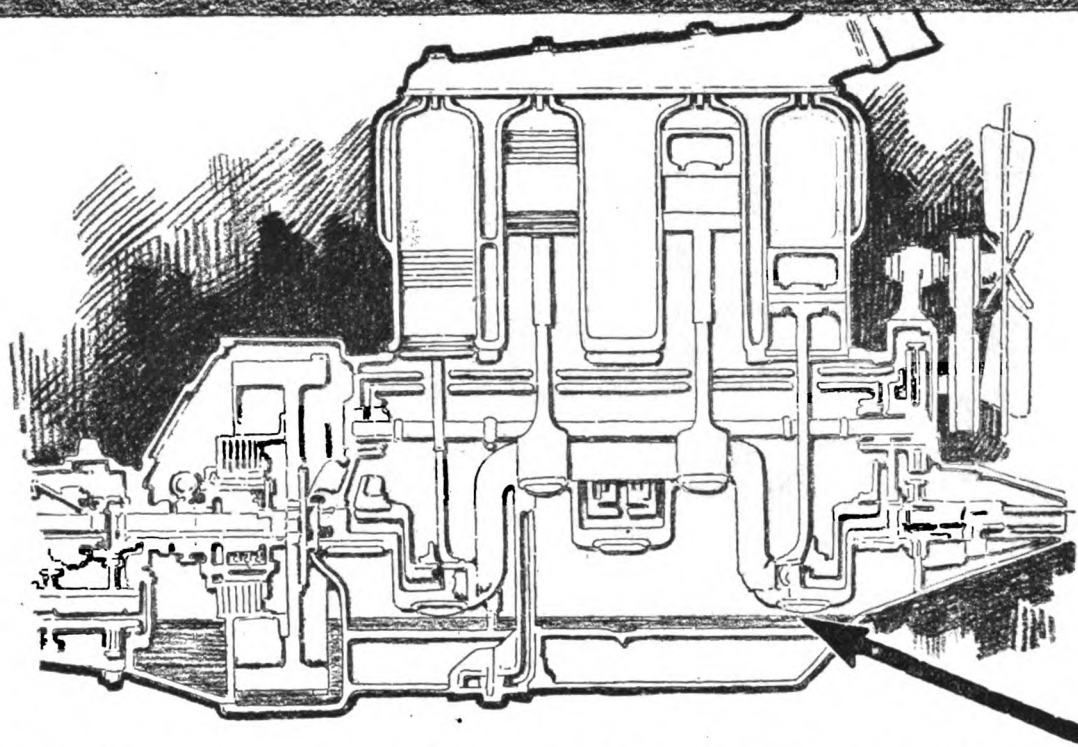
Name _____

Firm Name _____

Street Address _____

City _____ State _____

Digitized by Google



The Proper oil at the proper level

TEXACO MOTOR OIL

You can tell it by its clear, clean color.

YOU have seen cars trailing clouds of black, dirty smoke behind them. That smoke, as you know, is caused by too much oil.

Such a condition is wasteful and destructive. It is destructive because no matter how good the oil is, if fed rapidly, it will work past the piston rings, and because of the excess oil, only partial combustion is possible and carbon deposits will ensue.

Some oils will deposit hard, gritty matter. This clogs up the motor, sticks to the spark plug, causes missing and back-firing, and scores the piston rings and cylinder walls.

However, there are several oils which will not deposit hard carbon. With these the products of incomplete combustion are soft, fluffy and non-adhesive. They are blown off with the exhaust.

Such an oil is Texaco Motor Oil. Use it properly, keep it at the proper level in your crank case—inspect the indicator and be sure that it is in good order—and you will find it the proper oil to use under all conditions.

There are reasons—Texaco Motor Oil, on account of its basic qualities, cannot deposit a hard carbon crust. When too much Texaco Motor Oil is fed, the worst it can do is to form a soft soot which will not scratch or cut and which may be easily wiped off.

Texaco Motor Oil lubricates perfectly, keeping friction at a minimum. It gives a perfect seal between piston and cylinder walls thus preventing leakage of gasoline into the crank case. It maintains its original body and quality in use.

Texaco Motor Oil may be obtained at most good garages. The safest way, the best way, to buy is in one or five gallon cans.

THE TEXAS COMPANY
New York Chicago Houston
DISTRIBUTING OFFICES IN MOST CITIES

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Harvey
RACINE

20,000 SPRINGS
ALWAYS IN STOCK

There's a Harvey Spring manufactured for practically every make and model of car. Our immense factory stock of 20,000 springs comprises over 600 different styles and sizes. You don't have to depend on the car manufacturer for replacements. You can get better springs and save time and trouble by ordering Harvey's.

Each spring is painted black and is wrapped and tagged—ready for instant shipment. Also, more than fifty large wholesale distributors, whose service covers every point in the United States, represent us exclusively and carry large and complete stocks of Harvey Springs. When you order Harvey Springs for replacements, you have the assurance of getting an exact duplicate and *getting it quick.*



MADE FOR ALL THE POPULAR CARS

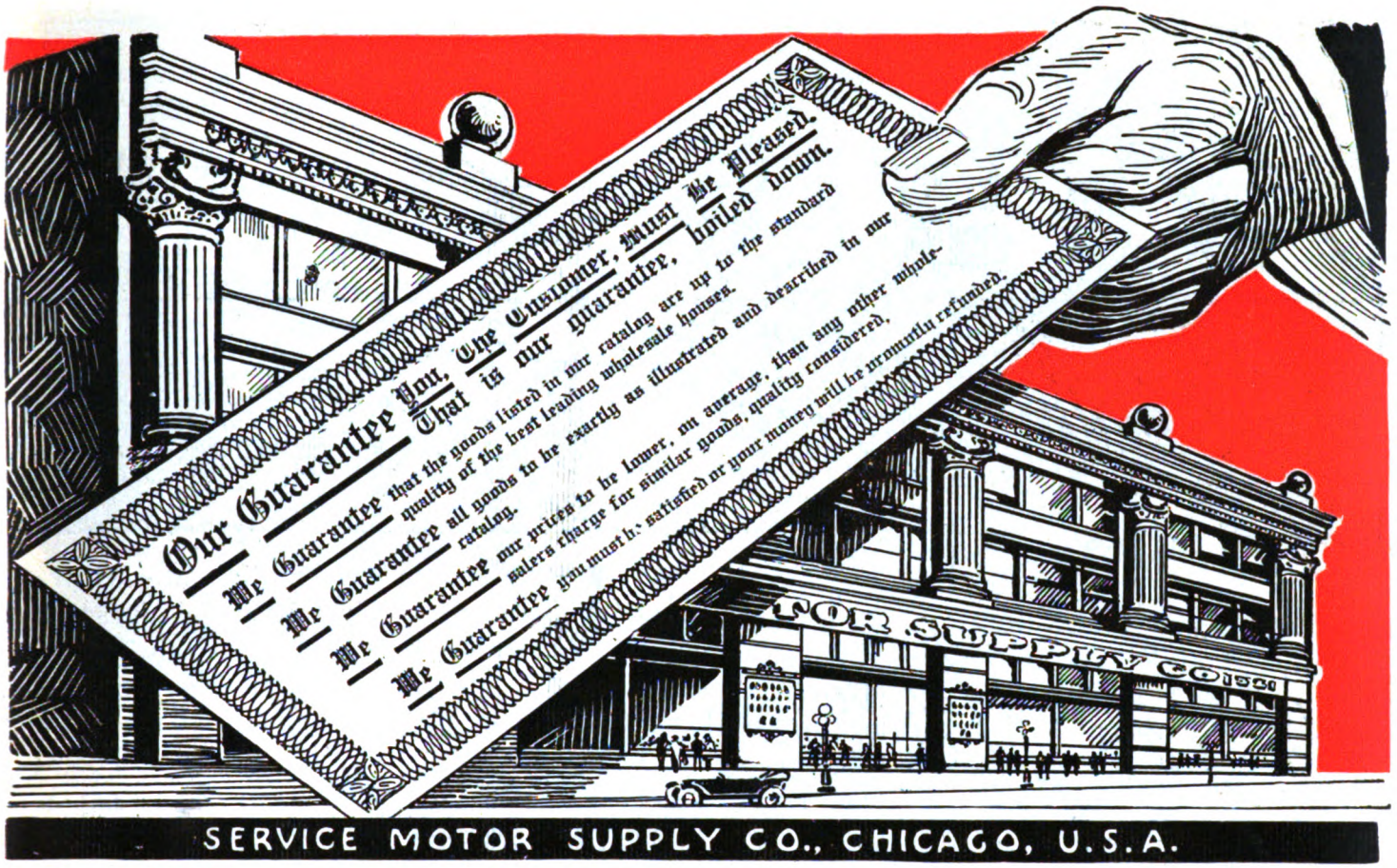
ABBOTT-DETROIT
ALTER
ALLEN
APPERSON
AMERICAN
BRISCOE
BUICK
CADILLAC
CASE
CHALMERS
CHANDLER
CHEVROLET
COLBY
COLE
CROW-ELKHART
CUNNINGHAM
CUTTING
BRIGGS-DETROITER
DODGE
DORT
E. M. F.
EMPIRE
ENGER
EVERITT
FLANDERS
FORD
GRANT
HAYNES
HERRESHOFF
HOLLIER
HUDSON
HUPMOBILE
IMPERIAL
INTER-STATE
JEFFREY
KING
KISSEL-KAR
KRIT
LEWIS
LION
LITTLE
MARATHON
MARION
MARION-HANDLEY
MARMON
MAXWELL
MERCER
METZ
MICHIGAN
MITCHELL
MONROE
NATIONAL
OAKLAND
OLDSMOBILE
OVERLAND
PACKARD
PAIGE
PATERSON
PATHFINDER
PREMIER
PULLMAN
RAMBLER
R. C. H.
REGAL
REO
SAXON
SCRIPPS-BOOTH
STODDARD-DAYTON
STUDEBAKER
STUTZ
VELIE
VULCAN
WARREN-DETROIT
WESCOTT
WINSTON
SPECIAL STYLES AND SIZES MADE TO ORDER PROMPTLY.

Write for Free Book:—Gives complete details about numbers and sizes for all cars—any model. Also ask for name of nearest Harvey dealer. When you need springs, insist upon having "Harvey".

HARVEY SPRING COMPANY
848 Seventeenth St., RACINE, WISCONSIN

5

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SERVICE MOTOR SUPPLY CO., CHICAGO, U.S.A.

The Proof!

When anything succeeds, the success is evident—there is no questioning that. When we adopted *"the Square Deal in Business"* as our platform, we put this platform into cold type—in the shape of the *GUARANTEE* we show above. And from then on, every single transaction—every sale we made, was made under the terms of this *GUARANTEE*.

Has it paid? ***Yes,*** it has paid us a thousand-fold—***and here is the PROOF***—

When we started business in a small way, we had principally as our capital—"hopes" and the firm determination to treat our customers ***RIGHT***. In those early days 1000 orders per month looked like big business; made us feel proud and encouraged.

Has it paid? ***Yes,*** again—and this is how it has paid—

INSTEAD OF 1,000 ORDERS A MONTH, WE NOW GET 30,000

TO ALL DEALERS

We pledge fair treatment, biggest values, and the chance to increase profits.

WE SELL WHOLESALE ONLY

Only bona fide dealers and garage men who buy to re-sell can buy goods from us. Our monthly catalogue, ***"SNAPS"*** is mailed only to bona fide dealers. If you have not received a copy of ***"SNAPS"***, send for it! 30,000 dealers all over the country call us their ***"CHICAGO PARTNER."*** Why don't you?

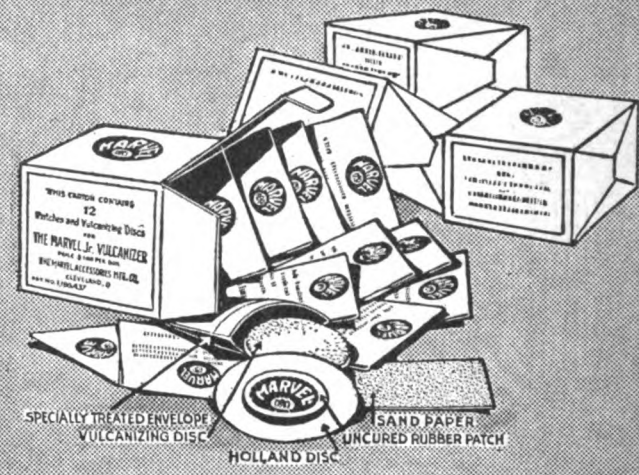
Copy of ***"SNAPS"*** will be mailed you free if you are a bona fide dealer. Write for a copy on your letterhead.

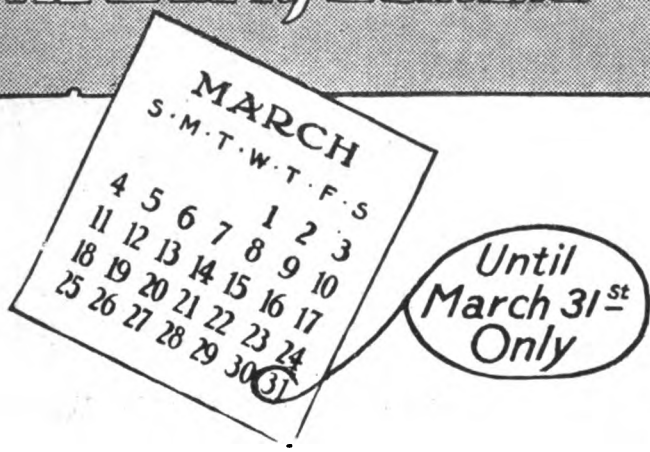
SERVICE MOTOR SUPPLY Co. 1523-25-27-29-31 Michigan Blvd. CHICAGO, U.S.A.

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free

To Help You Meet The Early Demand





MORE than a half million Marvel Jr. Vulcanizers have been sold by our dealers. Its success is absolutely established. Here is your chance to make a record-breaking turn-over of your money—and nearly 100% profit.

Tear off the coupon—fill it in and mail it *now*. We will send you one dozen Marvel Jrs. through your jobber. Send you four dozen patches and chemicalized heating units direct. Your investment—$8.40; your profit—$7.60 *plus* the repeat business that is bound to follow.

IN ADDITION—with your order we will send you *free* window display outfit and demonstration material—eighteen patches and chemicalized discs *free* to show your customers they can "put on a patch as easy as you light a match." Mail the coupon *now*.

THE MARVEL ACCESSORIES MFG. CO.
7275 St. Clair Ave., CLEVELAND, OHIO

With your order for one dozen MARVEL Junior Vulcanizers



we give you patches and chemicalized discs to retail at $4.00 FREE!

MARVEL JUNIOR VULCANIZER

THE MARVEL ACCESSORIES MFG. CO.,
7275 St. Clair Ave., Cleveland, Ohio.

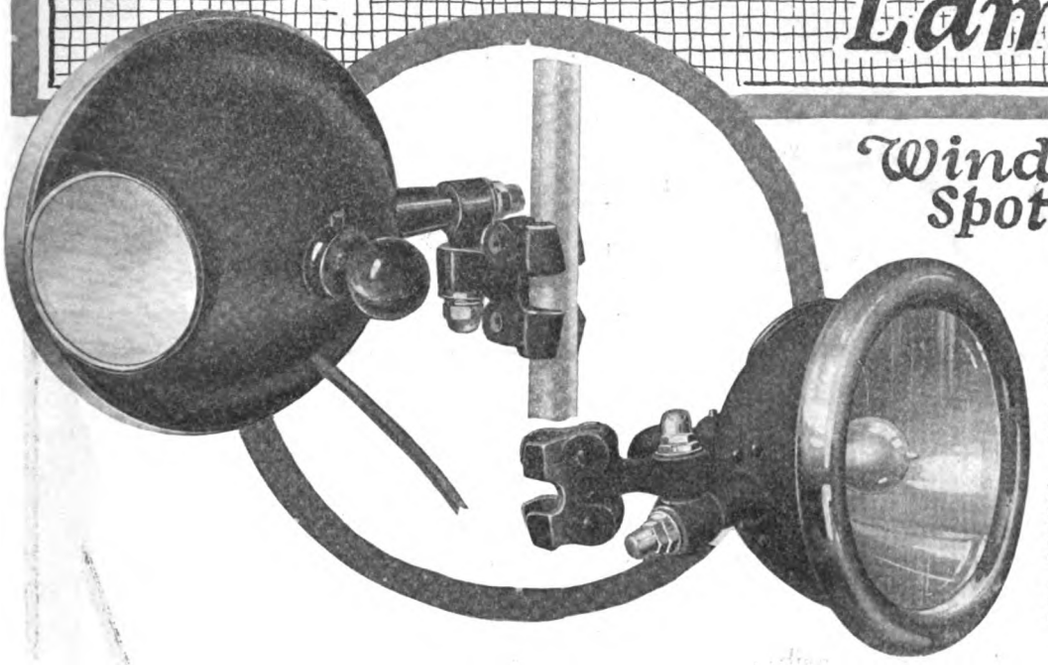
Enter our order for .....dozen Marvel Jr. Vulcanizers at $8.40 per dozen or 6 dozen—@ $7.80 per dozen. Our jobber's name is.....
..... Address.....

Send us *free* four dozen patches and heating units with each dozen Marvel Jr. Vulcanizers. Send sales helps checked. ☐ Window Display. ☐ Eighteen Patches and Discs for demonstration. ☐ Folders. ☐ Counter Cards.

Name .....
Address .....

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VICTOR Lamps—



Windshield Spotlights—

Model No. 50 Electric Spotlight sells for $5.00. It is equipped with our rolled push button nickled door, silver plated brass reflector, positive switch in handle and 5 ft. of connector cord with terminals.

It is attached to the windshield by a substantial malleable bracket with nickel plated nuts permitting it to be turned in any direction or reversed.

The back of the lamp is fitted with a rear view diminishing mirror.

LARGE scale production supplemented by thorough organization, with specialized manufacturing experience is bound to produce the most satisfactory results in any line, both to the manufacturer and the customer.

The combination which created the Corcoran-Victor Company was brought about with this purpose.

We secured the greatest efficiency and economy in production on the one hand, permitting us to give the high quality goods which have made our brands famous at a minimum price, while at the same time enabling our customers to concentrate their dealings with one firm and secure a complete line with minimum of trouble and expense.

Jobbers who have not yet learned the value of our products can test the Corcoran-Victor line in no better way than by stocking the Victor Model No. 50, Windshield Spotlight. A spotlight that is equalled by no spotlight on the market whatever its price—yet one that sells at a price moderate enough to make it popular with all classes, attracting at the same time the most discriminating purchasers.

This combination of high quality with low price is a characteristic of the whole Corcoran-Victor line.

Another interesting phase of the Corcoran-Victor line is our oil lamps—Items which the popularity of gas and electric lamps have caused to be neglected by ordinary manufacturers.

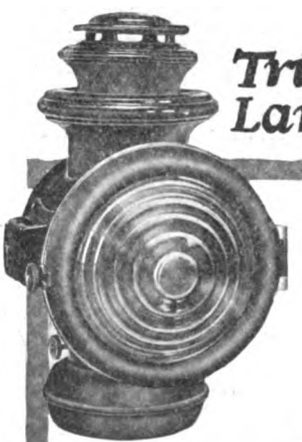
We can offer you oil lamps of the best construction—oil lamps GUARANTEED TO BURN.

Our Model No. 79 Side Lamps sell at $10 per pair. They are handsomely finished in black and suitable for pleasure cars but because of their strength and ability to stand vibration they are especially adapted to trucks. Model No. 69 Rear Lamp is suitable for use with No. 79 Side Lamps. It has a ruby glass rear light and is very attractively finished in black enamel. It is suitable for use as a rear lamp for Fords and other cars for which rear oil lamps are NECESSARY.

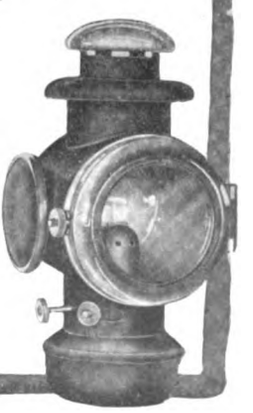
In addition to lamps the Corcoran-Victor Company sells a complete line of Tool and Battery Boxes of all sizes, covering the possibilities of almost all cars. They are very strongly built and finished in black japan and fitted with Yale or Victor Locks.

Prices range from $2.35 to $2.80

Truck Lamp—



Round Oil Tail Lamp



CORCORAN-VICTOR CO.

Everything a Jobber Needs to Carry

Cincinnati, Ohio

Tool & Battery Boxes—



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The Emerson Motors Co., of Kingston, N. Y., is making and delivering Emerson Fours—NOW.

The EMERSON 4

THE EMERSON "FOUR" does not resemble a Roman Chariot. It is not bedecked with purple and gold. Neither is it a 90-horsepower "road-burner." It is not intended to rival the large, expensive automobiles.

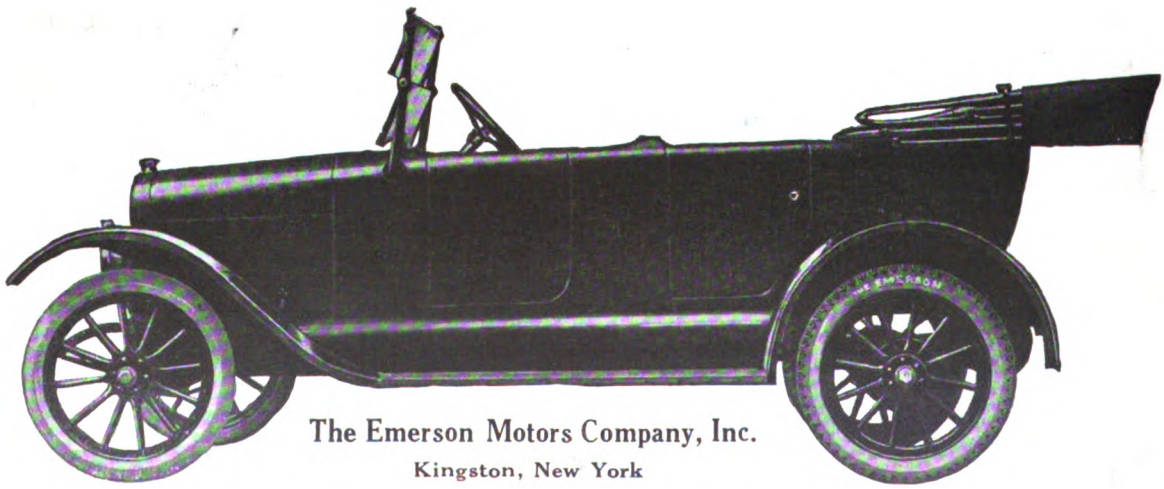
IT IS A SENSIBLE CAR for the sensible man, who desires to stay within his means and at the same time enjoy the pleasures of motoring.

IT IS A SIMPLE, SAFE CAR that your wife or daughter can drive easily and confidently.

IT IS A COMFORTABLE CAR, with plenty of leg room, with efficient springs and sufficient length of wheelbase. It enables you to "tour" without tiring yourself and passengers, or alighting with stiff, cramped limbs at the end of the journey.

IT IS A GOOD-LOOKING CAR, low-hung, stream-line, handsomely finished and equipped.

IT POSSESSES THOSE DESIRABLE QUALITIES of graceful lines, exceptional roominess, ease of riding, and plenty of power with economy.

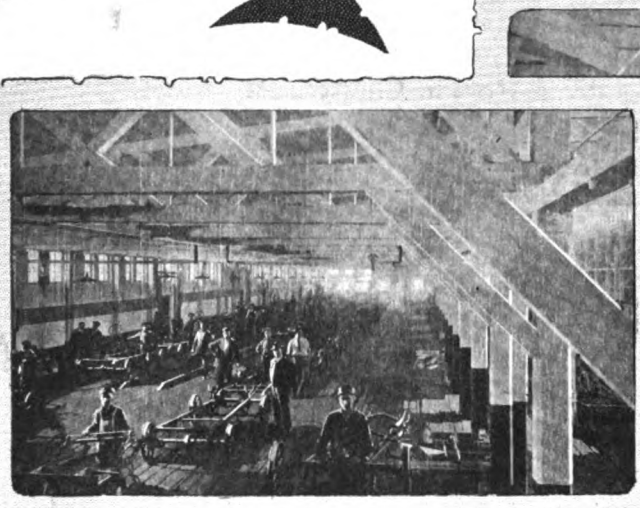


The Emerson Motors Company, Inc.
Kingston, New York

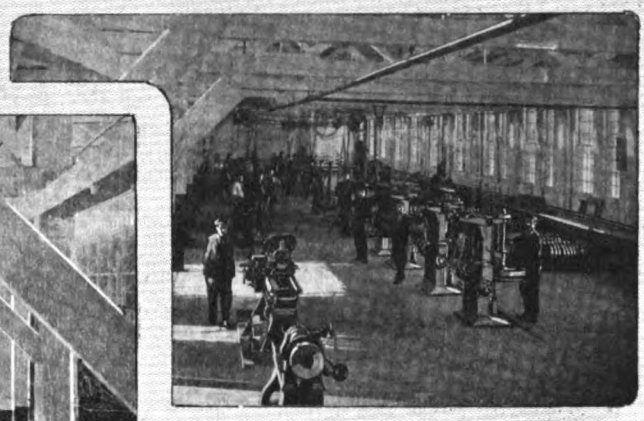
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The EMERSON "FOUR" is worthy of more than passing thought. It is a car that the world has long been waiting for—therefore it will prove one of the largest sellers this year. You'll find the market unrestricted, and why?—because THE EMERSON "FOUR" is the lowest-priced 5-passenger 110-inch wheelbase car in the world.

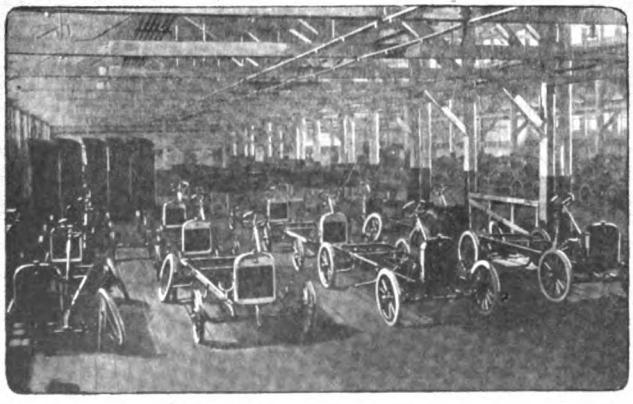
Write for further particulars. Your territory wants this car.



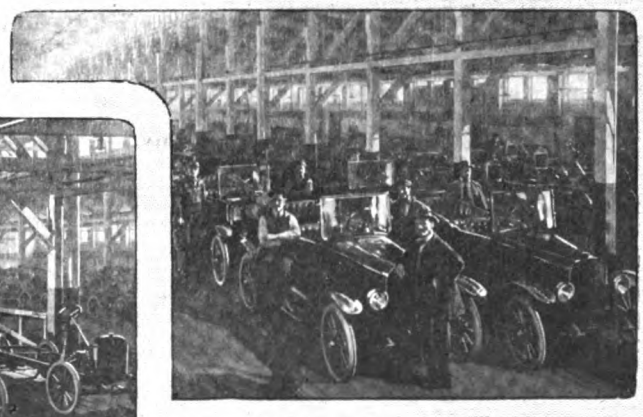
Chassis Assembly Floor



Machine Floor



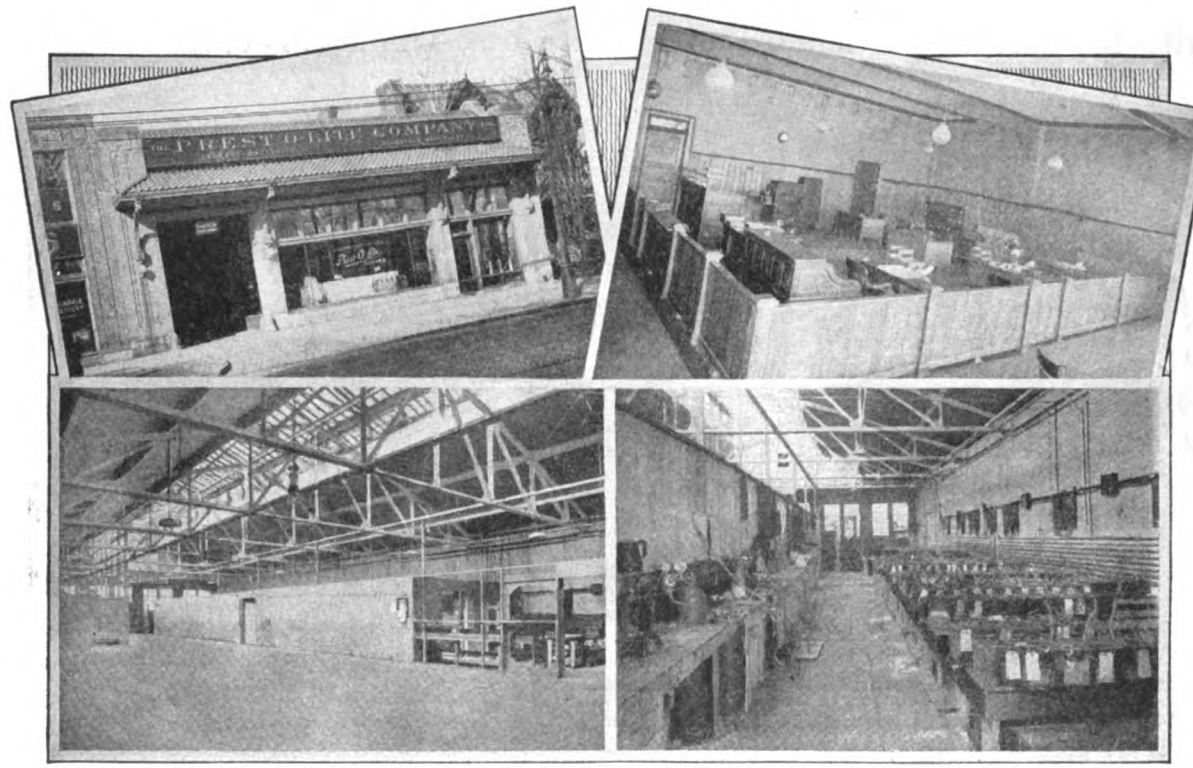
Chassis and Body Paint Floor



Final Assembly Floor

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Prest-O-Lite SERVICE in DETROIT



Illustrations above show, (top) front view of Prest-O-Lite Factory Branch at 1239 Woodward Ave., Detroit; (below) the large space devoted to battery inspection and service.

Views above show, (top) commodious office space of the Detroit Branch; (below) large quarters occupied by the battery charging and repair department.

IN Detroit, fifth city of America, the automobile metropolis of the world, where the influence of the motor car is far-reaching and SERVICE is a paramount issue—there you will find a big Prest-O-Lite Factory Branch, with a live, hustling organization giving real *factory* service to manufacturers, dealers and car owners in Detroit and Eastern Michigan.

Detroit is but one link in the great chain of Prest-O-Lite Direct Factory Branches and Service Stations. The Prest-O-Lite network of service literally covers the country, insuring full satisfaction and hearty co-operation to owners, dealers and manufacturers in the use of Prest-O-Lite products.

Thousands of dealers are finding the Prest-O-Lite Battery proposition a source of substantial profit. Write today for details.

The Prest-O-Lite Co., Inc., U. S. Main Office and Factory, 902 Speedway, Indianapolis, Indiana
Canadian Main Office and Factory, Merritton, Ontario, Canada

The Prest-O-Lite battery is a better battery--backed by a better service

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The "Key" to the Gibson Storehouses

Ready for you now. Get yours today.

THIS 400-page book is the "key" that unlocks the great Gibson storehouses. This new 1917 Gibson catalog places before you, and gives you instant access to, the vast stocks of merchandise that are here awaiting your pleasure and profit.

No accessory dealer or garage operator can afford to be without this book. It lists, describes and pictures the great Gibson stocks, completely. It gives a great deal of useful information in the accessory and equipment fields. It serves as a dependable buying guide—for none but articles of known merit and salability are admitted to its pages. This valuable book is just off the press. A copy will be sent free to legitimate accessory dealers and garage operators. Write today, asking for Catalog G. 2, and allow us to place your name on our permanent mailing list.

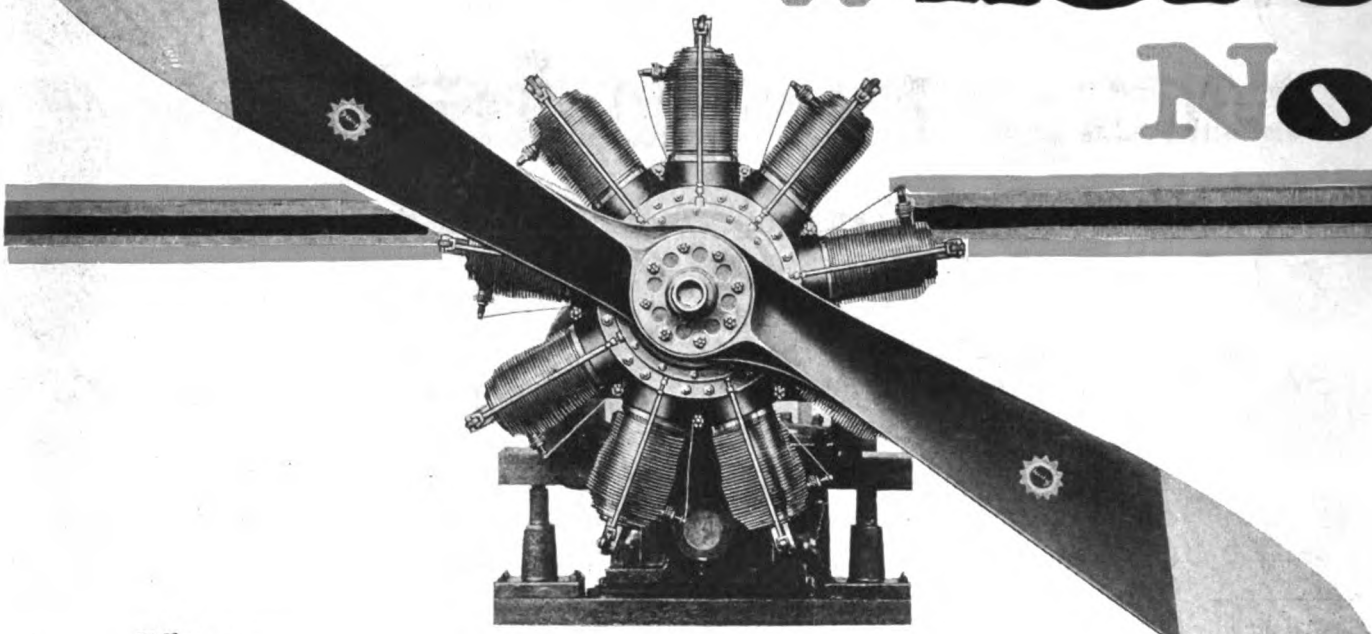
THE GIBSON COMPANY
INDIANAPOLIS

Motor Car Accessories and Tires
Shop Equipment and Electrical Supplies

"Gibson serves the World"

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Where No



Efficiency—

That is the sole consideration of the General Vehicle Company in the production of the Gnome engine, illustrated herewith.

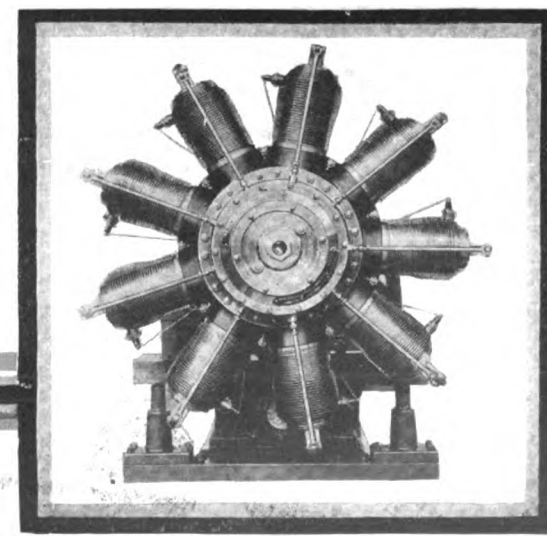
And bear in mind, too, that efficiency means not alone performance and endurance—but it also means

Safety—

That's why, in selecting the bearing equipment for Gnome engines U. S. BALL BEARINGS were chosen by the General Vehicle Company.

U.S. Ball

U.S. BALL BEARINGS



At the top of this page is shown a front view of the Gnome engine with propeller fitted. At the bottom is the same view without the propeller.

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There Can Be Compromise—

STILL further evidence of the unquestioned superiority of the ball bearing as an anti-friction device is furnished by the almost universal use of ball bearings by aeroplane manufacturers.

As we have stated in our heading to this advertisement, in aeroplane products there can be no compromise. A man, soaring up into the air at a speed of maybe a hundred miles an hour and at a height of anywhere from a thousand feet to a mile or two from the ground, takes no chances in the equipment of his machine.

He wants efficiency—speed, power, endurance—but more than that, he wants reliability and absolute safety. These attributes are assured him in the highest degree by the use of ball bearings at all friction bearing points.

The fact that the General Vehicle Company could save money by using substitutes for ball bearings has had no weight with them in the design of these 100 H. P. Gnome engines. As stated before, the intention has been to produce the very finest piece of mechanism possible to manufacture and to do this it was obviously essential to equip these engines with ball bearings—with U. S. Ball Bearings.

And whenever any manufacturer of any machine in which it is necessary to overcome friction selects ball bearings, as anti-friction devices, you may be sure that manufacturer is earnestly endeavoring to produce the highest class product that can be built.

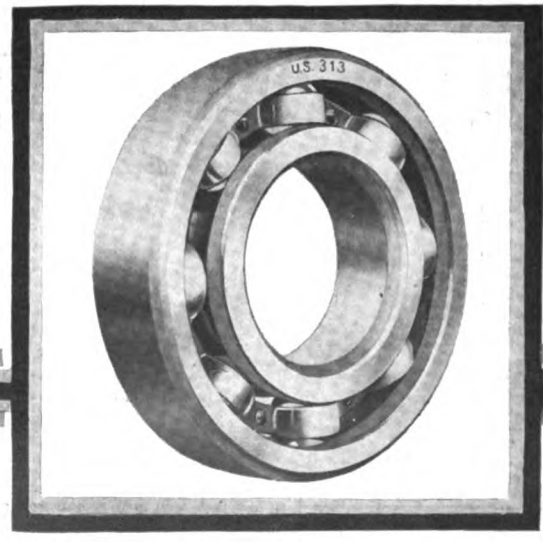
U. S. Ball Bearing Mfg. Co.

[CONRAD PATENT LICENSEE]

PALMER STREET AND KOLMAR AVENUE
CHICAGO, ILLINOIS

Bearings

Illustration on this page shows one of the Standard U. S. Ball Bearings used in the General Vehicle Company's 100 H. P. Gnome engines.



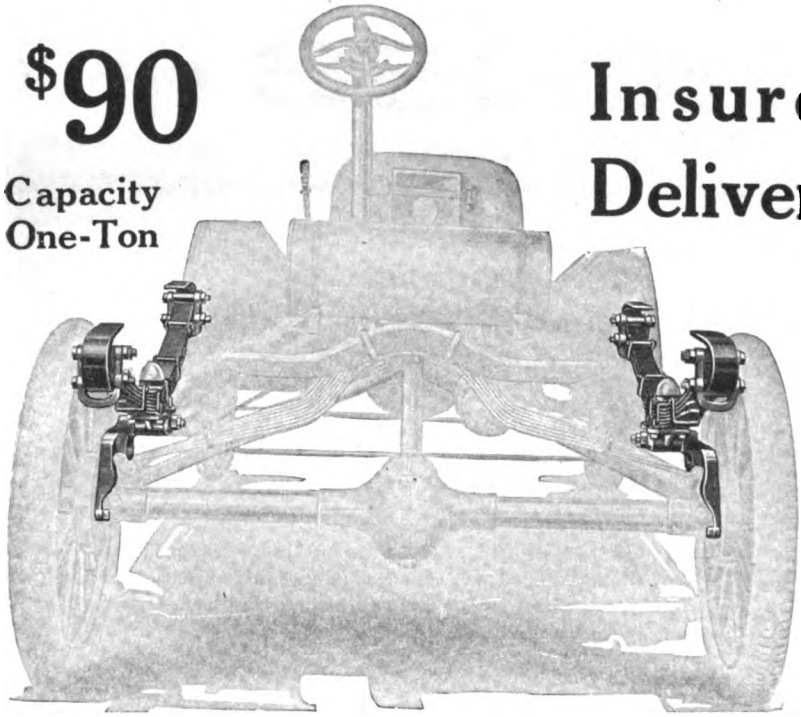
U.S. BALL BEARINGS

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1000 Sets A Day Is OLSON Capacity

$90

Capacity One-Ton



Insures Immediate Deliveries On All the

OLSON UNITS

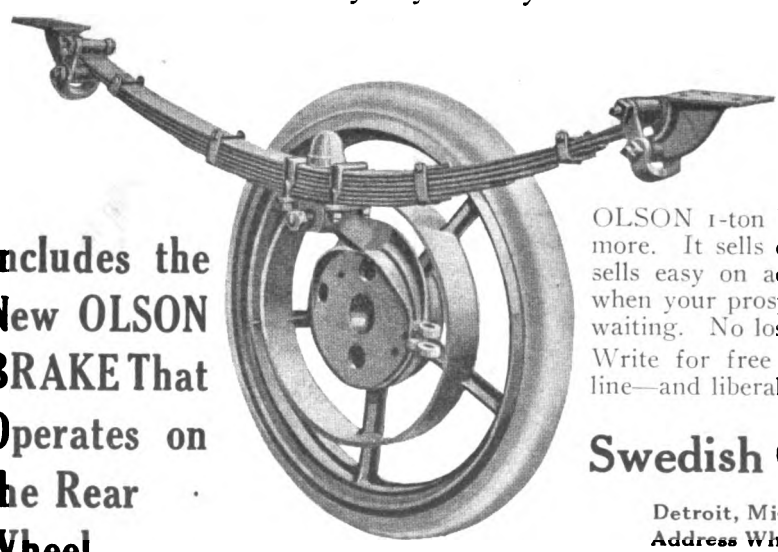
You Can Sell

To Thousands of Waiting Prospects

Coal dealers, contractors, brewers, wholesalers, packers, farmers—big business men right in your territory—buy motor trucks on the basis of **price per ton per mile,** for haulage.

They buy for better service at lower cost, for reliability, stamina and durability from a truck of proven worth. If you have what they demand, you sell it.

OLSON Unit dealers have it. They sell it. OLSON Units stay sold—and their service sells more like them every day. They are—



Includes the New OLSON BRAKE That Operates on the Rear Wheel

The Lowest Priced— Most Practical 1-Ton Unit For Fords

—the lowest priced, most practical one-ton capacity truck ever built.

OLSON 1-ton Unit costs ¼ as much as others that do no more. It sells easy on price. It sells easy on service. It sells easy on achievement record—and it is ready to sell when your prospect is ready to buy. *1000 sets a day.* No waiting. No lost sales. Big profits. SUCCESS.

Write for free illustrated literature of complete OLSON line—and liberal dealers' offer.

Swedish Crucible Steel Company

FACTORIES

Detroit, Mich., U. S. A. **Windsor, Ont. Canada**

Address Wheel Dept.

Chicago Branch 1344 Michigan Blvd.

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Our Dealers Can Say This About THE MONROE "4"

It Stands Supreme Among Cars of Its Class

"MY car is 40 per cent more efficient than any other car of like size and piston displacement."

"Its supremacy in its class is undisputable. Official tests have proved it. And any comparison under any condition will prove it conclusively to you."

"The increased efficiency of this car has been attained, not by building this car around one good feature, but by incorporating in it everything that represents the highest development in motor car construction."

No Rival In Its Class

"By the use of a fully counterbalanced crank shaft and a highly improved method of pressure lubrication, vibration and friction have practically been eliminated."

"This means greater fuel economy. It means greater engine economy. Motor wear is reduced to the minimum. It means greater tire economy by enabling you to avoid changing gears."

"It means a luxurious riding ease such as has never before been attained in a car of like wheelbase. You almost forget there is an engine in the car."

A Pressure Oiling System

"The Monroe system of oilless bearings sets new standards for simplicity among cars of all classes."

"The Monroe offers you a pressure oiling system that supplies a continuous flow of oil to all parts of the motor. In this way the temperature of the crank shaft bearings is kept low and the viscosity of the oil is maintained."

"The oil supply is increased or decreased in proportion to the power production, and all chance of over-oiling or under-oiling is eliminated."

"The M. & S. locking differential restricts differential action and almost entirely prevents slipping, skidding and sticking."

"By the use of cross compound cantilever spring construction a riding ease and comfort on country roads at all speeds, hitherto unattained in cars of like weight and wheelbase, is secured."

"There is a beauty of design and elegance of appointment that will immediately attract the eye of all luxury lovers."

It Will Prove These Claims

You can make these claims and *the Monroe will prove them.*

Put the Monroe to the severest test. Try it over the roughest roads—through sand and mud. Make it climb the steepest hills. Drive it in the most crowded streets. Note its power, its flexibility, its quick response, its riding comfort. Then you will recognize Monroe supremacy.

The Monroe is the kind of car you want to sell. The kind of car that will make new and enthusiastic friends for you. It stands supreme among cars of its class.

There is still some territory open for high grade dealers. It may be yours. Write us for full particulars.

Price $985, f. o. b. Pontiac, Mich.

MONROE MOTOR COMPANY, PONTIAC, MICH.

Makers Also of a Small "4" in Sedan, Roadster and Touring Models (7)

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A Little Thing to look for- A Big Thing to Find

TRADE MARK

The Trade-Mark of

SHELDON

Look for the sign of the double anchor—the Trade-mark of SHELDON.

It typifies leadership. It is the mark of a pioneer. It symbolizes a half century of manufacturing experience and progress. It is placed on all Sheldon products for the guidance and protection of buyers.

On a worm-drive rear axle the Sheldon emblem is a symbol of proven superiority. Sheldon Axles were given the highest award (gold medal) at San Francisco, 1915.

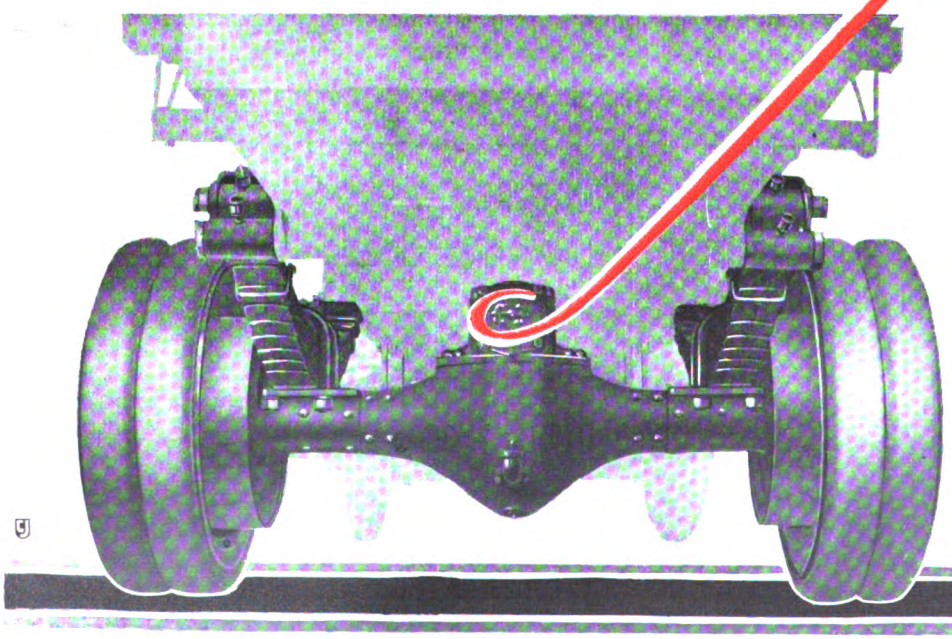
The first worm-drive rear axles made in this country bore the trade-mark of Sheldon.

The big torpedo-like hub caps that you see every day on so many of the best makes of trucks are signs of Sheldon dominance in the worm-drive axle field.

On these hub caps and on the axle housing you will always find the Sheldon Trade-mark.

It stands for efficiency—plus.

When buying a truck, look for it. It is a pledge of satisfaction and a guarantee of low-cost haulage.



The Sheldon Axle & Spring Co.

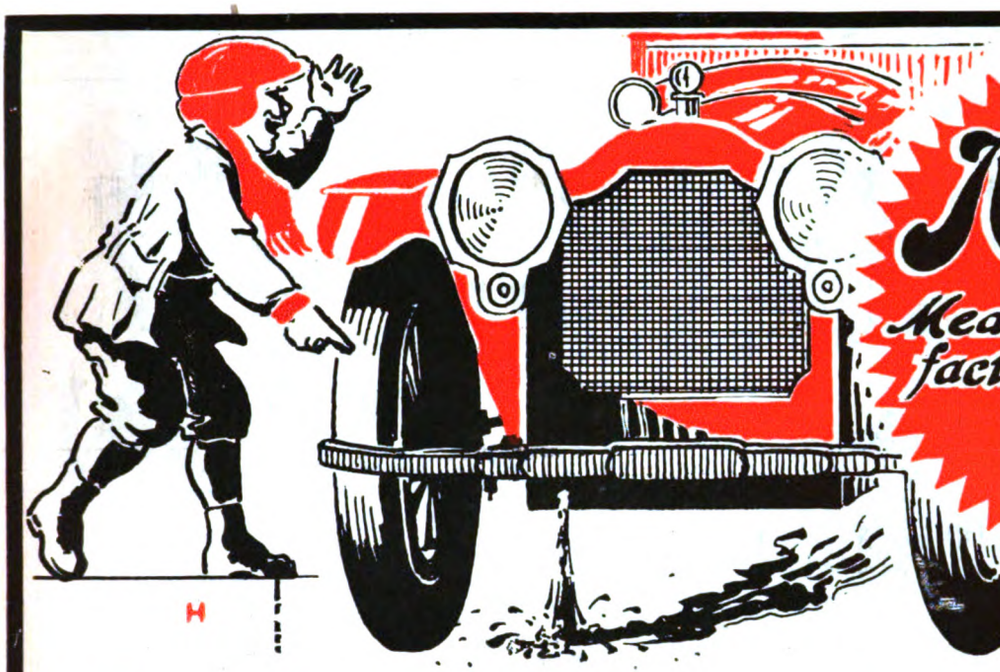
Makers of Springs and Axles for Heavy Duty Service for over Fifty Years

Wilkes Barre Pennsylvania

Highest Award, Panama-Pacific International Exposition



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Rie Nie

Means Owner Satisfaction and Dealer Demand

"Hey Mister! You need some Rie-Nie German Radiator Compound—Stops the Leaks"

M A.-1
Durkee-Atwood Co., Minneapolis, Minn.
Please instruct my jobber .....
.....of.....
to ship me the noted amounts of the items checked. It is understood he is to bill me for them and I am to pay him as per our usual terms and subject to my regular dealer discount.

....doz. German Radiator Compound	@	$ 6.00 per doz.
.... " Auto Patch (Small 36 Sq. In.)	@	6.00 " "
.... " Auto Patch (Large 108 Sq. In.)	@	12.00 " "
....Valve Grinding Compound, Duplex can	@	3.00 " "
....Shop size (One Grade, Fine, Course, or Medium, @		6.00 " "
....½ Pts. All In One Black Dressing.	@	.40 each
....Doz. Hand Soap, one pound cans	@	1.20 per doz.
....½ Pts. Air Drying Black Enamel	@	.40 each
....Pts. Mohair Dressing and Waterproofing	@	.75 "
....One pint Clutch and Brake Comp. (Spec. Oilers)	@	.35 "
....½ Pts. Cylinder Enamel	@	.40 "
....½ Pts. Rie-Nie Re-Nu (Cleaner and Wax Polisher combined)	@	.25 "
....Fine Pac. Oil (Special Oilers)	@	.25 "

Name.....
Address.....
City..... State.....

When you offer a motorist our Radiator Compound you're making an appeal to him that's the hardest of all to resist—***a saving of money.***

Tell him that a tablespoonful of Rie-Nie stops the leak entirely and forever and ***one*** can of Rie-Nie will mend any number of leaks, and you'll sell him.



You've got a real selling argument—like the one above—on every article in the Rie-Nie line. We have had you dealers in mind on every product we've turned out. We are making goods that are easy for you to sell because they have exclusive features and each fills a real need for motorists.

If you are not familiar with Rie-Nie Products you owe it to yourself to get posted. Send for complete catalog describing each one of our products. Give the goods a try-out. Don't wait for your jobber to call. Check what you need on the attached list, fill in your jobber's name and we'll fill the order and bill through him. That's easy. Do it now.

REMEMBER:—A Spoonful Stops the Leak!

Durkee-Atwood Co., Minneapolis, Minn.

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In Every Test

made by the Engineering Departments of sixty-eight leading car manufacturers in which all makes of plugs were tried out



AC WON

Spark AC Plug

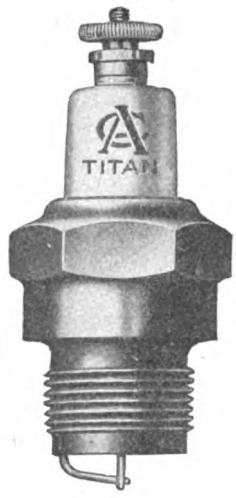
America's Champion

These High Class Cars Are AC Equipped

Cadillac
Pierce-Arrow
Packard
Marmon
Hudson
Chalmers
Hupmobile
Haynes
Peerless
Dort
Cole
Reo
Paige
Saxon
Stutz
Dodge Brothers
Stephens
Velie

Buick
Oakland
Oldsmobile
Jeffery
KisselKar
Premier
Knox
Jordan
Liberty
Crane-Simplex
Pilot
McLaughlin
Canada
Stearns-Knight
Singer
National
Jackson
Westcott

Look for the AC Burned into the Porcelain



Pathfinder
Chandler
Chevrolet
Apperson
Davis
Daniels
Detroiter
Paterson
McFarlan
Bour-Davis
Lexington-Howard
Scripps-Booth
Signal Truck
Sandow Truck
Sterling Truck
Chase Truck
Netco Truck

Moreland Truck
Republic Truck
Diamond T Truck
Gramm-Bernstein Truck
Brockway Truck
United Truck
Wilcox Trux
Gabriel Truck
Murray
Monroe
Federal
American-La France
Four Wheel Drive
Anderson
G. M. C.
Abbott



Follow the Lead of the Leaders. They have done the experimenting for you

The Standard Spark Plug of America

Champion Ignition Co., Flint, Mich., U. S. A.

MR. DEALER:
Can you think of another motor part used by as many high class manufacturers as AC Plugs?



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Willard STORAGE BATTERY

Are Your Car-Owners Starving Their Batteries?

We men at the Willard Service Stations often have occasion to ask this question.

For nine times out of ten when a car-owner comes to us with battery trouble it's due to the simple fact that the battery has been allowed to go hungry or thirsty—or both.

I take one look at the hydrometer reading and it shows the specific gravity is way down. That tells the story!

The battery hasn't been kept fully charged and filled with distilled water.

If this simple rule is followed it means battery health and long life.

Neglected, it means repairs by a battery expert.

If your cars are equipped with Willard batteries, their owners have good value to start with, for over 150 car-builders (the vast majority of all whose cars are electrically equipped) include Willard Batteries in their regular equipment.

Anything with such an indorsement back of it is worth taking care of.

Drop in to see me. I'll tell you how to *prevent* battery troubles—and when repairs are needed I'm the man to make them, for I got my battery education from factory-trained experts.

By the way, I've rental batteries for your car-owners if theirs needs repairs.

The Willard Service Station Man

For addresses of the 850 Willard Service Stations write to the Willard Storage Battery Co., Cleveland, Ohio



Some of the Cars Whose Makers Equip Them with Willard Batteries

Abbott-Detroit
Am. La France
American Six
Anderson
Anger
Apperson
Armleder
Austin

Bell
Brockway
Bull Moose
Burford

Case
Chalmers
Chandler
Chevrolet
Columbia Six
Commerce
Crawford
Crow
Cunningham
Cutting

Daniels
Dart
Davis
Day-Elder
Denby
Detroiter
Dixie
Dodge
Dort
Drexel
Drummond

Eagle-Rotary
Elcar
Empire
Excelsior

Federal
F. I. A. T.
Fostoria
F. W. D.

General
Gersix
Glide
Gramm-Bernstein
Grant

Halladay
Harroun
Haynes
Herff Brooks
Hollier 'Light'
Houghton
Hupmobile

Inter-State

Jones
Jordan

Kent
King
Kissel Kar
Kline
Knox

L. C. E.
Lane
Lexington
Liberty
Lippard-Stewart
Locomobile
Lozier
Luverne

McFarlan
McLaughlin
Madison
Marion-Handley
Martin
Meteor
Metz
M. H. C.
Moline Knight
Monarch
Monitor

Monroe
Moon

National
National Motor Truck (Canada)

Old Hickory
Overland
Owen Magnetic

Packard
Paige
Pathfinder
Patterson
Peerless
Penney
Phianna
Pierce Arrow
Pratt
Premier

Reo
Republic
Richmond
Riddle
Roamer
Rush

Sayers-Scoville
Simplex
South Bend
Spaulding
Standard
Stanley
Stearns
Stephens
Studebaker
Sun

Thomas

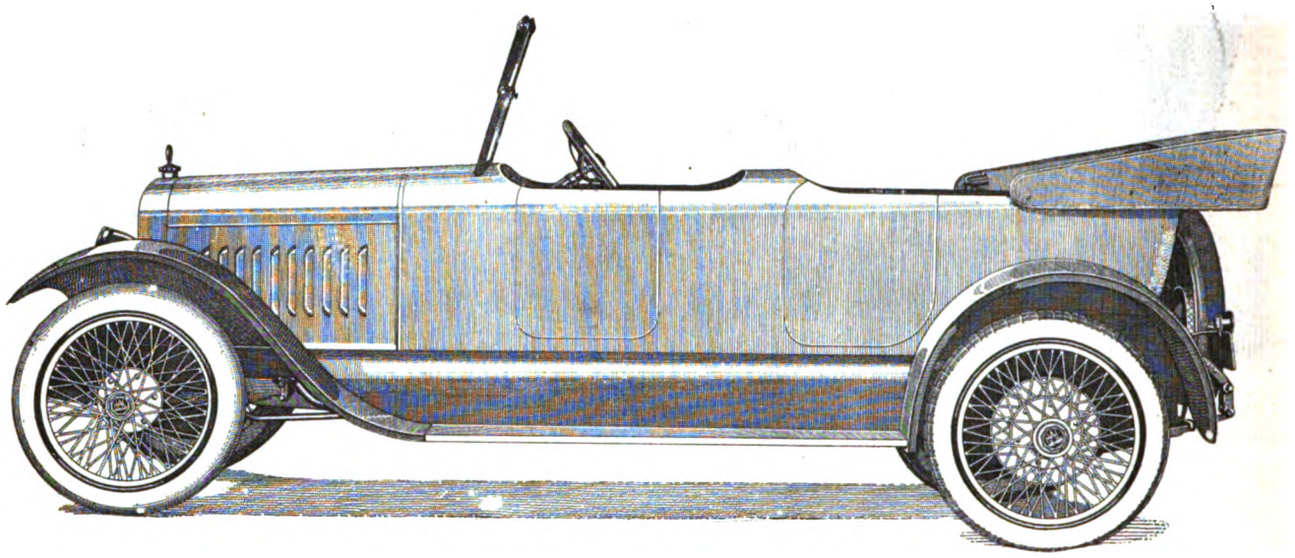
Velie

Westcott
Willys-Knight
Winton



Willard Storage Battery Company
Cleveland, Ohio

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The Hal Twelve

The action of the Hal-Twelve motor is so smooth that the speed of the car is deceptive. With the speedometer covered, a speed of 20 miles per hour seems 10 miles per hour; and a speed of 60 miles an hour seems scarcely more than 30. The motor is the wonderfully smooth V-type twelve with the powerful valve-in-head construction. Seven-Passenger Touring Car or Roadster, $2600. Limousine or Town Car, $4500. Touring Sedan, $3500. Prices f. o. b. Cleveland.

Hal Motor Car Company, Cleveland, Ohio

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The 1917 Advertising Battery Is Shattering All Havoline Oil Sales Records.

HAVOLINE OIL

REG. U.S. PAT. OFF.

"It makes a difference"

This gigantic Havoline advertising drive, coupled with the sound, consistent principles of Havoline merchandizing, is the dealer's guarantee of steady sales.



Indian Refining Company, New York
Incorporated
Producers and Refiners of Petroleum

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For Your Convenience—

The Guaranty Banking Corporation of Chicago announces that it will act as correspondent for the Guaranty Securities Corporation of New York, in the operation of the Guaranty Plan of automobile time payments. Dealers and distributors, situated in the Middle West and Rocky Mountain section of the country, are invited to make use of this institution in handling their financial arrangements, without inconvenient loss of time.

In banking, loss of time means loss of money. You will find the Guaranty Banking Corporation offers thorough accommodation—safety, security—in the most prompt and efficient manner.

Although the Guaranty Banking Corporation will specialize in automobile finance, arrangements have been made to engage in all regular banking activities. Incorporated as a State Bank, under the provisions of the Illinois law, it will maintain a complete service for the usual commercial transactions. Your patronage is solicited.

Under the Guaranty Plan dealers are offered the service of the largest banking institution of this nature in the country.

Credit sales may now net the dealer as much profit as cash business. Full 100 per cent is offered under the terms of the Guaranty Plan.

There is no red tape or collection bother. Guaranty dealers need bear no additional expense for this accomodation.

More than $30,000,000 worth of automobiles have been financed on Guaranty terms.

Cars for floor delivery or to be stored in the warehouse, may be financed on the Guaranty Plan. A service of unusual value in this respect is offered dealers and distributors.

Cars are financed on the Guaranty Acceptance Plan for display in the dealers' show room.

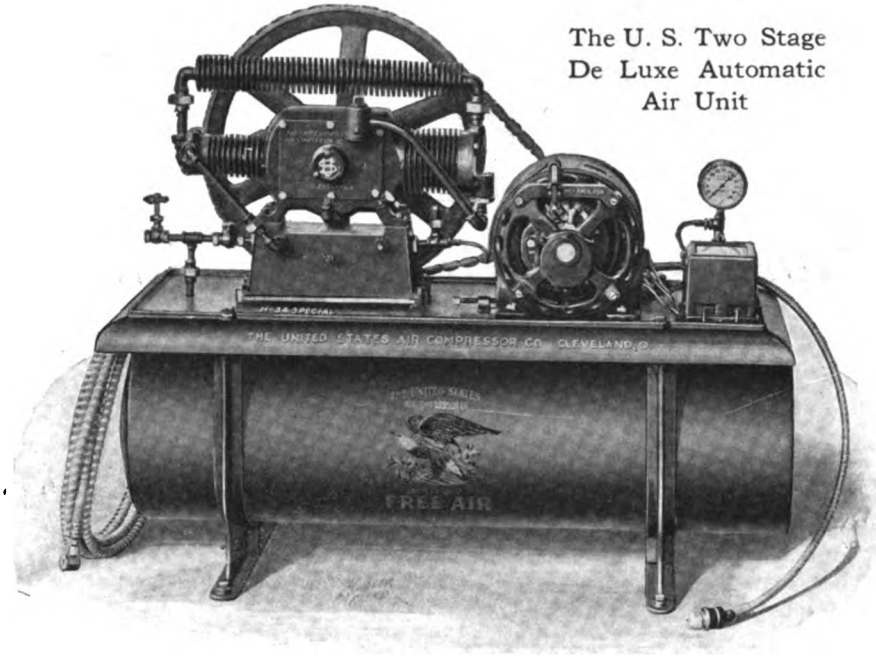
Guaranty Banking Corporation

Continental and Commercial Bank Building
Chicago

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U·S· TWO-STAGE AIR COMPRESSOR U·S·

The Air Compressor Sensation of the Auto Shows



The U. S. Two Stage De Luxe Automatic Air Unit

WE have proved conclusively through years of experience that the Two Stage Air Outfit is unequalled and even unapproached in the compressor field.

We had absolute confidence in the improvements incorporated in our new 1917 De Luxe outfit because they were based upon a *long study of conditions, extensive experimenting* and *actual service tryouts.*

Therefore we knew the trade would be agreeably surprised at the wonderful improvements attained in the new outfit. We must frankly confess, however, that our most optimistic day dreams never pictured as enthusiastic a reception as this De Luxe Outfit received at all the Auto Shows.

Garagemen of long experience were spontaneous in praise because they immediately appreciated the methods we had successfully employed to overcome common air compressor weaknesses. Some of the younger men were not so quickly convinced. They would look, listen, nod their heads and then pass along. The superiority of the De Luxe Outfit was so obvious, however, in comparison, that almost invariably they returned. As a result *we booked ten times the actual orders ever before obtained at an Auto Show.* Our factory, just doubled in size, is already taxed almost to capacity.

There are distinct reasons for this unusual success—14 of them in fact. Some are simply refinements of features common to all air compressors, others are exclusively features found in no other outfit.

The main one is the **Two Stage** Feature which permits the compressor to maintain higher efficiency with less mechanical effort and contributes to the quietness and life of the machine. Another is the **Intermediate Starting Tank** which permits machine to start against no pressure, thereby eliminating the cause of burned out motors. Still another is special device which furnishes air absolutely free from oil. To fully appreciate this machine, however, you must get our catalog and descriptive circulars. Send the coupon for them now.

We suggest quick action to those considering the purchase of an air compressor so that they will not have to buy an inferior machine because of inability to get satisfactory delivery of a De Luxe Outfit.

United States Air Compressor Co.
Cleveland, Ohio

Gentlemen:

Send me your catalog and circular describing the compressor which made such a hit at the Auto Shows as advertised in Motor World.

Name _____

City _____

My Jobber Is

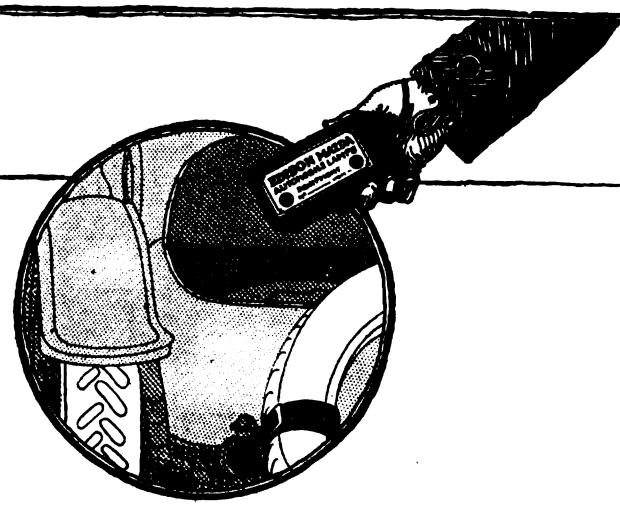
Jobbers Wanted

We are desirous of hearing from Jobbers in a position to push this line to whom we can make an attractive proposition.

U·S· THE UNITED STATES AIR COMPRESSOR CO U·S·

CARNEGIE AVE., CLEVELAND, OHIO.

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You carry an extra Tire, Why not extra Lamps?

Ask your customer that question—"Why not Extra Lamps?"—and your profit on a complete set of spare lamps is pretty well assured.

He carries spare tires as a matter of course; he carries an extra spark plug and other spare parts to provide against any number of emergencies.

But what about his lamps? Why not extras?

It's just simple logic—and good judgment—for him to carry a complete set of

EDISON MAZDA Automobile Lamps

To make your sale of Edison MAZDAS easy and certain we supply you with three mighty valuable and effective helps:

FIRST—Our 1917 indexed auto lamp booklet, from which any clerk can tell at a glance the correct bulbs for any socket in any car—no matter what make or model.

SECOND—Our special Edison MAZDA Auto Lamp Chests, in which you pack the proper bulbs. Customers like this handy, compact chest because it's convenient, and the lamps can't break. He can just chuck it into his tool box and forget the lamps till he needs them.

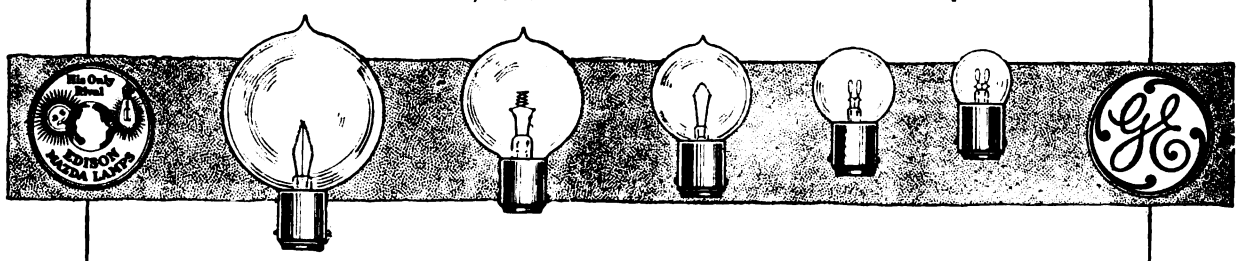
THIRD—Our complete Counter Assortment, which displays attractively and contains the correct lamps for every socket in practically every car made.

The initial investment in this splendid sales aid is slight—and reordering to keep the stock complete is almost automatic.

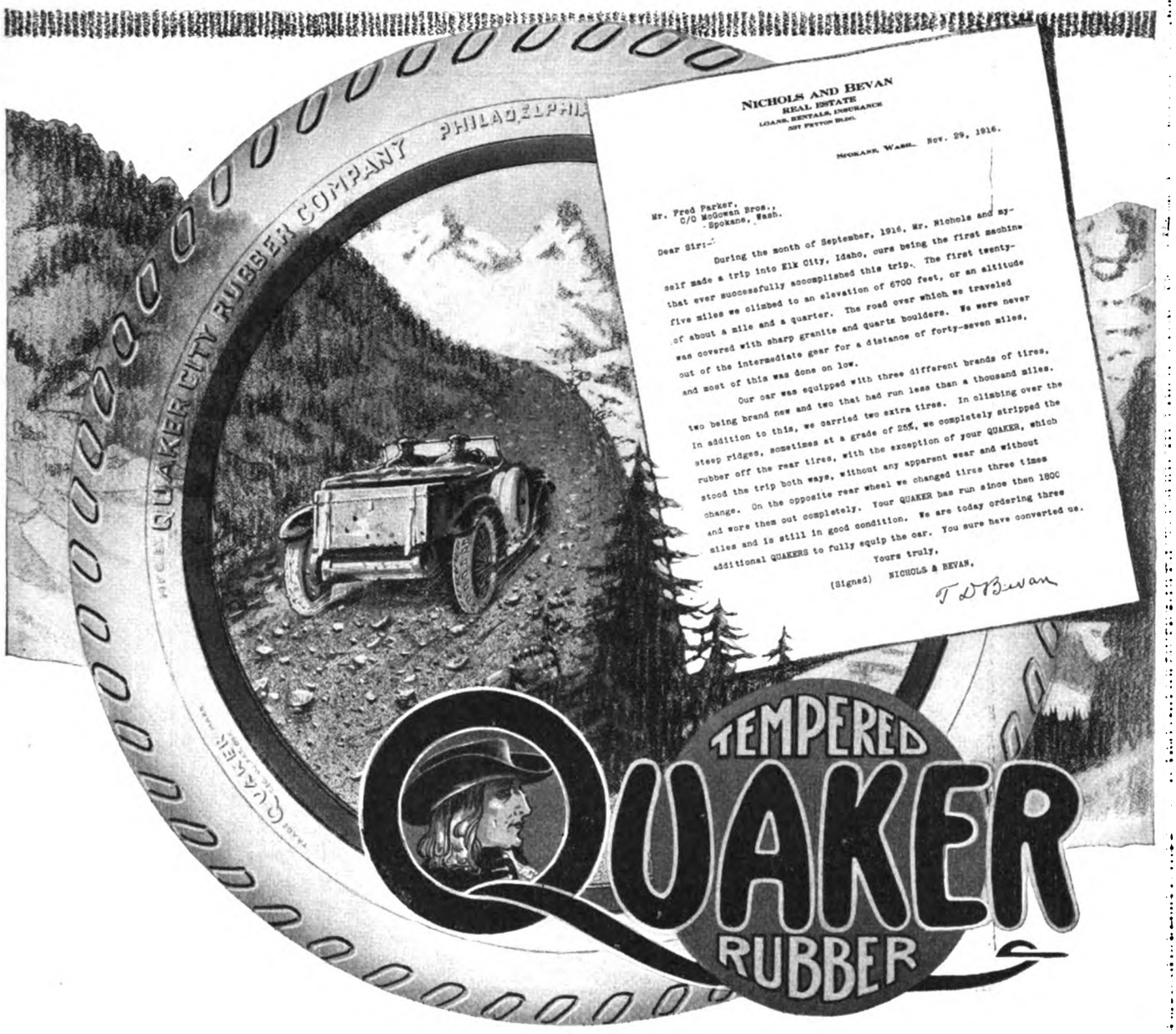
Write Today for Agency Proposition

EDISON LAMP WORKS of General Electric Company

General Office: Harrison, N. J. Sales Offices in Principal Cities



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Time and again we have told you about Quaker Tires—the way they are built, the materials used, and the wonderful added resiliency, flexibility, elasticity and endurance secured by **tempering** the rubber. Now, users tell you what Quaker Tires **do.**

"I have a Quaker Tire purchased in July, 1914, and run continuously until April 1, 1916, 9977 miles. Have had but one small blow out in it and the tread is not worn off yet."
(Signed) F. A. Turner, M.D., Rockport, Ill.

"I have and am still using Quaker City casings on my car and have gotten the best of satisfaction out of them. I live in one of the roughest counties in the State of Texas. Have got as much as 6000 to 7000 miles use of them. I average about 1000 miles per month and have used a Quaker tire for nine months without a blowout or serious puncture."
(Signed) W. G. Abernathy, Sheriff Palo Pinto County, Texas.

"I will start this letter by saying that you have the best tire made. You shipped me a tire over two years ago and that same tire is running today. I am sorry that I haven't the mileage."
(Signed) W. E. Shackleford, Miami, Florida.

"In the month of June, 1915, I purchased from your company one pair of 3½ x 32 Non-Skid Quaker Tire, which I placed on my car and kept in constant service until the latter part of July, 1916. During all this time they were free from blowouts and never had the original air taken out of them."
(Signed) John S. Kenney, Johnstown, Pa.

"I have used two Quaker Tires on a car which was bought second hand. One Quaker was practically new when the car was bought and was on the rear. I changed the new Quaker to a front wheel and have run it without necessary change for nearly 8,000 miles and expect to run it some more thousand before it is worn out."
(Signed) Andrew B. Winsor, Johnston, R. I.

Because they give results under all conditions of service, Quaker Tires make and hold trade. If Quakers are not represented in your locality, write for our proposition. Address Dept. T-1.

Quaker City Rubber Company PHILADELPHIA Factory — CHICAGO 182 W. Lake St. — PITTSBURGH 211 Wood St. — NEW YORK 53 Murray St.

When writing advertisers please mention Motor World—It identifies you

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AT LAST—A "DIFFERENT" TIRE!

Not a freak of fancy, but a high quality pneumatic tire of superior merit, reinforced for greater strength and protection against blowouts by extra fabric "breaker strips" on the side walls.

Built by Akron's most experienced tire engineers, from choice materials, and incorporating "year-in-advance" improvements, they stand forth as the last word—the ultimate, in tire building.



DEALERS—

To be the Amazon Dealer in your territory will safely intrench you against all tire competition. Here is a tire that will enable you to take your territory, on an exclusive basis, and work it for all there is in it, and be certain that you alone will reap the long dividends that will accrue.

Every car owner in your territory represents an Amazon prospect, and every car owner will be continually directed to your store as the Amazon Agency.

A part of our co-operation consists of laying out an entire advertising campaign in your territory and following it through consistently, *at absolutely no cost to you!*

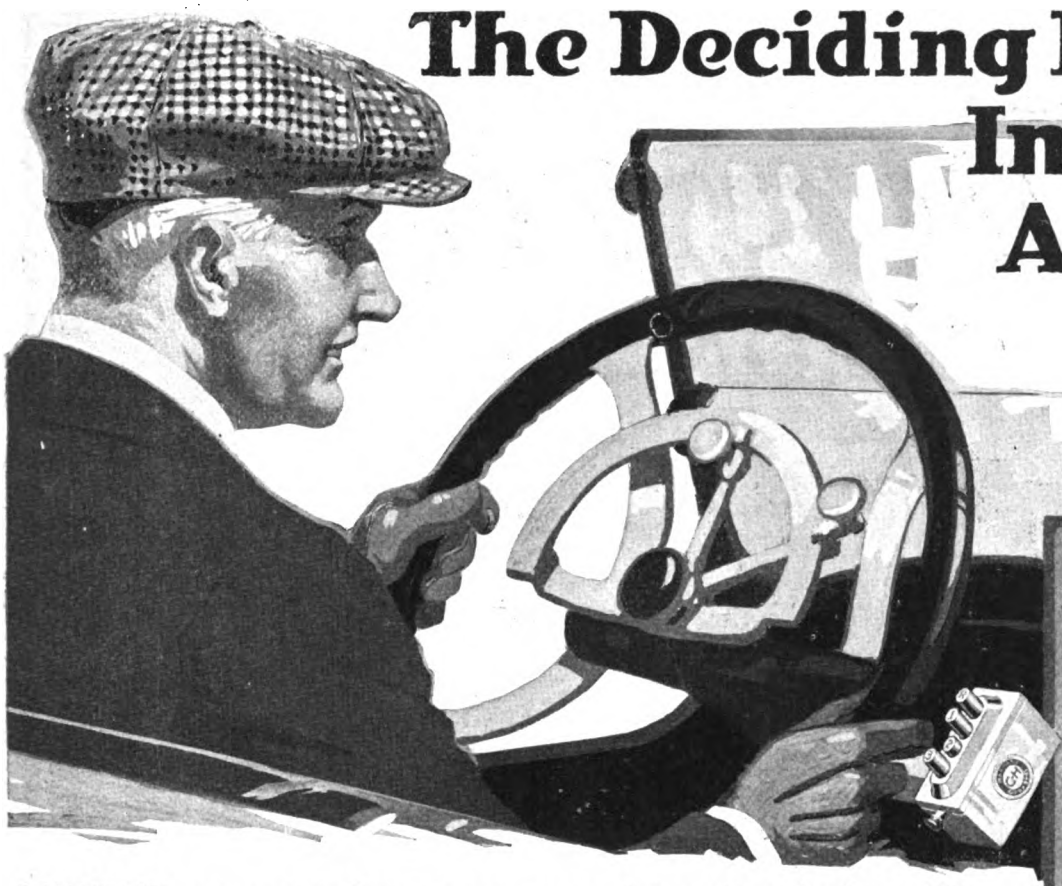
But this is only a part of Amazon Sales Service—let us lay the whole proposition before you while your territory is open. Write us!



The Amazon Rubber Company
AKRON, OHIO

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The Deciding Factor In Many A Sale



YOUR prospect listens more or less attentively while you talk about the motor, frame, springs, horsepower, upkeep—and all the rest of it—it has become somewhat monotonous, but when you come to the

C-H MAGNETIC Gear Shift

he pricks up his ears and really ***listens.*** He wants to know more about this push button method of gear shifting. Thousands, yes tens of thousands have gone to the trouble of telling us of their dissatisfaction with the old hand lever.

In selling a car it is surprising what a tremendous influence push button gear control is. Frequently, so the dealers tell us, the C-H Magnetic Gear Shift is the ***deciding factor*** in closing sales.



Every man who derives his income from selling automobiles, ought to be fully posted on the C-H Gear Shift—the big feature of the newest models.

Write for descriptive literature.

The Cutler-Hammer Mfg. Co.
MILWAUKEE, WISCONSIN

World's Largest Manufacturers of Electrical Controlling Apparatus

Simplified Driving

The C-H Magnetic Gear shift is operated by push buttons mounted on the steering column at your finger tips. The buttons are numbered—1, 2, 3 and R, for first, second and third speed and reverse. A touch of the finger depresses the buttons. Neutral is similarly selected.

In Crowded Traffic

The instantaneous action of the C-H Magnetic Gear Shift is a positive joy driving through crowded thoroughfares. At the signal "stop!" you press a button to select your starting speed. When the cop says "go!" you go into successive speeds so easily and quickly that you're across the street before the other fellows have grasped the gear shift lever.

You Can't Strip Your Gears

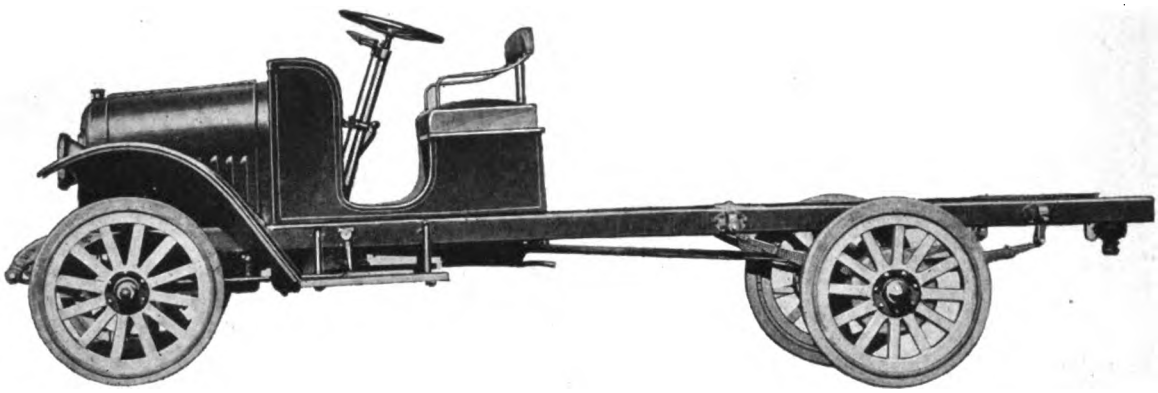
When your gears are controlled by the C-H Magnetic Gear Shift, they respond to the touch of the buttons instantly. One motion throws you through neutral into the speed selected. This means that when the car is equipped with the C-H Magnetic Gear Shift, you never have to think of the gears, you simply forget they are there.

Hill Climbing

If you have ever encountered any obstruction halfway up a hill or had to go around a soft spot or a bump, you know how exasperating it was to lose momentum while shifting gears. There is no lost momentum when you shift gears with the C-H Magnetic Gear Shift. A shift to another speed can be made with no lost momentum and your car goes right along without the slightest hesitation.

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Maxwell
ONE-TON TRUCK



History Again Repeats Itself

THE HISTORY

Walter E. Flanders, now president of the Maxwell Motor Company, announced his first passenger car (the E. M. F.) eight years ago, and publicly stated that he could build and had built a better car for $1,000 than was then being sold for $2,000.

The explanation was that he would build ten times as many cars, and through manufacturing economies and quantity purchases, he would be able to cut the price in half.

This business principal was at first questioned but later recognized and adopted by the larger automobile companies. Its basic soundness has, of course, been proved by the wonderful progress made in this industry during the last eight years.

THE REPETITION

A few weeks ago we announced our new one-ton truck, and explained that it would be marketed on the same plan—one model, quantity production, standard equipment and low price.

By reason of the price, practically one half of that asked by other makers of one-ton trucks, we have opened up an unlimited and almost untouched field.

Already there is overwhelming evidence of the popularity of the Maxwell Truck and the Maxwell manufacturing idea. During the New York and Chicago automobile shows, more than 500 dealers applied for the Maxwell contract. In the month of January alone, we had orders and inquiries from all over the United States.

The Maxwell Truck and Maxwell passenger car, combined with the Maxwell policy of big production, low price and nation-wide service, makes the Maxwell selling franchise the most valuable ever offered to any dealer.

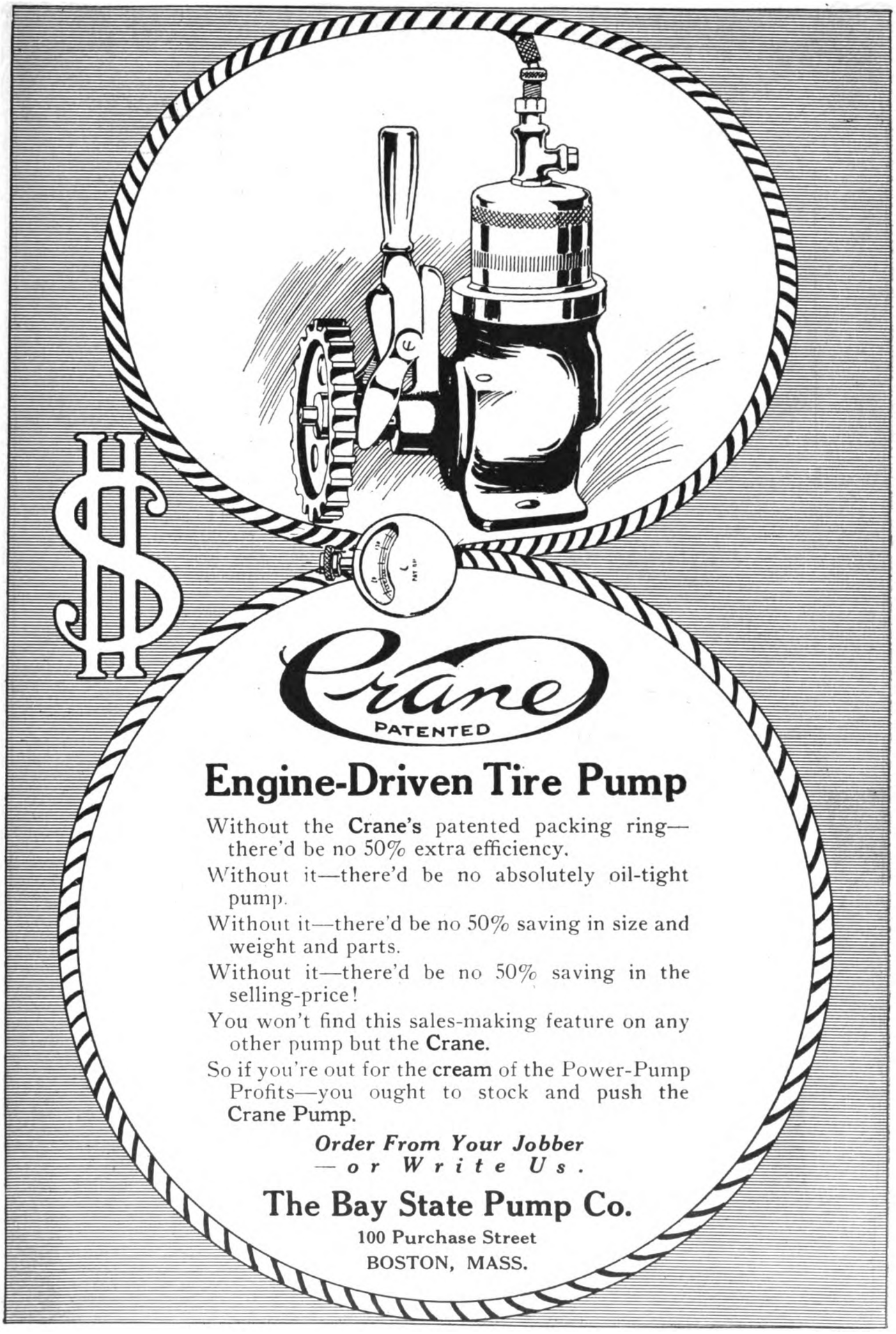
There are certain localities in which we are contemplating a change in agency arrangements. We will gladly send particulars of our proposition to interested dealers.

One-Ton Truck Chassis - -	$795.00
Box Body with Cab and Windshield	75.00
Covered Express Body with Integral Cab and Side Curtains - -	100.00
Panel Body with Integral Cab -	100.00

All prices F. O. B. Factory

Maxwell Motor Company, Inc., Detroit, Michigan

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Engine-Driven Tire Pump

Without the **Crane's** patented packing ring—there'd be no 50% extra efficiency.

Without it—there'd be no absolutely oil-tight pump.

Without it—there'd be no 50% saving in size and weight and parts.

Without it—there'd be no 50% saving in the selling-price!

You won't find this sales-making feature on any other pump but the **Crane.**

So if you're out for the **cream** of the Power-Pump Profits—you ought to stock and push the **Crane Pump.**

Order From Your Jobber
—or Write Us.

The Bay State Pump Co.

100 Purchase Street
BOSTON, MASS.

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BOWER SAVES POWER



CHAPTER I

from the story of the development of bearings

Before the wheel was devised by some prehistoric genius, one of the first methods used for transporting loads too heavy for the backs of men consisted of two poles or runners.

One end of each pole was supported by the person or beast of burden that furnished the motive power; the other ends of the poles rested on the ground.

From a practical standpoint, it might be said that a bearing in no way entered into the construction of this particular form of locomotion. Theoretically, however, the ends of the poles and the ground formed a bearing surface with its percentage of friction, resistance, amount of vertical load carried, etc.

This is one of a continued series, the second number of which will appear in the March 29th issue of this publication. If you wish the complete story in small, handy book form, write for a free copy of "The Evolution of a Bearing."



Bower Roller Bearings mark the last stage in the development of bearings. They have a maximum carrying capacity for both vertical load and end thrust. The rollers are self-aligning, and Bower Bearings never need adjustment.

BOWER
ROLLER BEARING CO.
Detroit Michigan

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A Few Live Dealers Can Still Profit By Scripps-Booth Expansion

Ever since we began to make Scripps-Booth cars, Scripps-Booth reputation has traveled faster than our factory facilities.

Our dealers seem to be in accord that the problem is not one of selling Scripps-Booth cars.

They all say that the main problem is to get enough cars to supply the demand.

That problem is being solved by a greater production.

The plain truth is that their customers fall in love with the car at first sight; that a demonstration usually clinches their admiration.

In other words, Scripps-Booth performance is the best form of salesmanship we have.

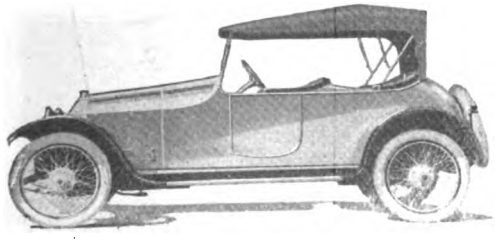
Increasing the output has enabled us to increase the number of our dealers.

We want dealers of high standing who appreciate their responsibility to the customer—who are alive to the attractive possibilities of this non-competitive line of light luxurious cars.

There may be a place for you in the Scripps-Booth family.

You should send your application in quickly, as we are rapidly closing up the available open territory.

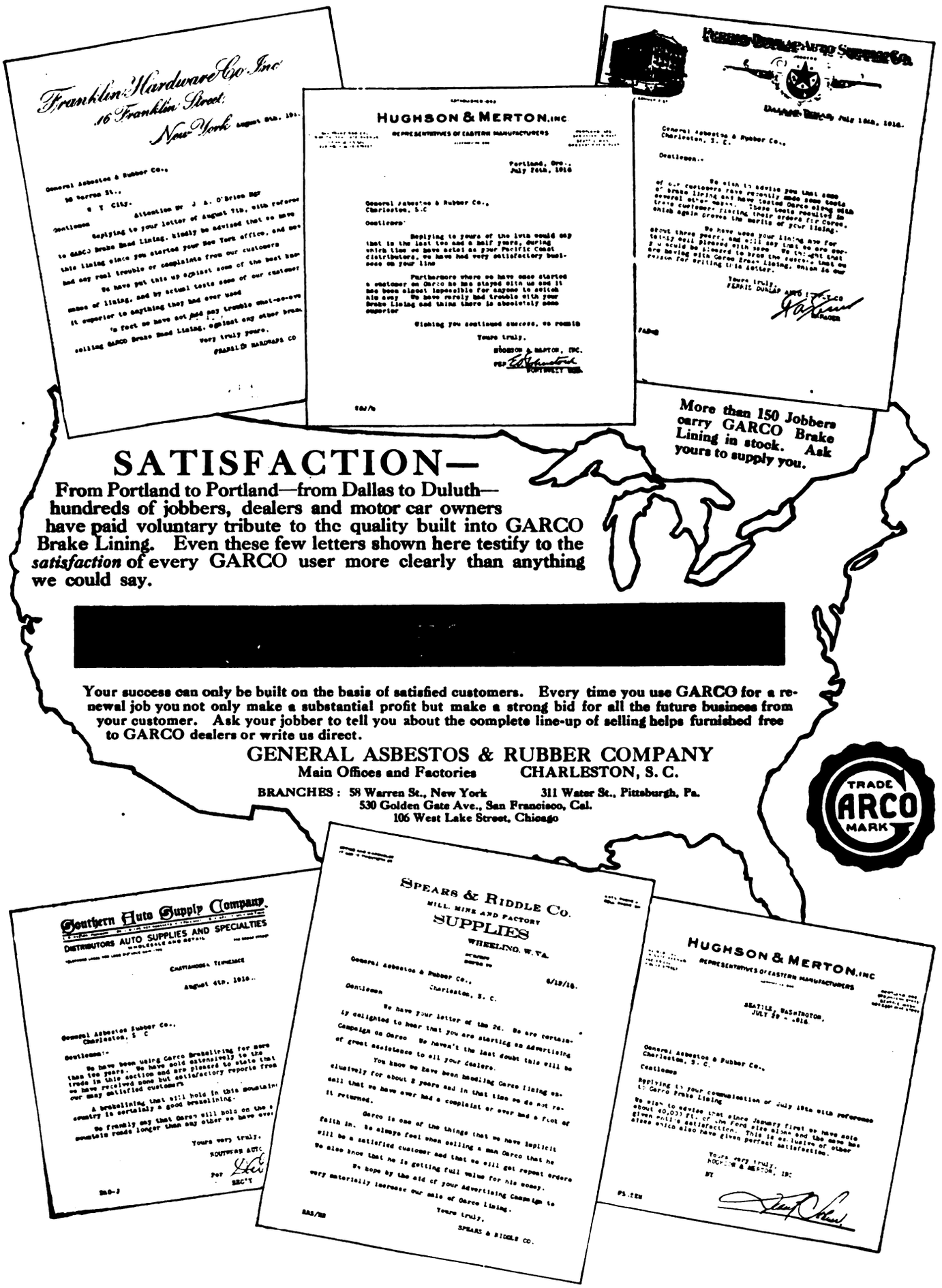
Scripps-Booth Corporation
Detroit, Mich.



Four-Cylinder Roadster	**$935**
Four-Cylinder Coupe	**1450**
Eight-Cylinder Four-Passenger	**1285**
Eight-Cylinder Town Car	**2575**

SCRIPPS ▼ BOOTH
SB
DETROIT

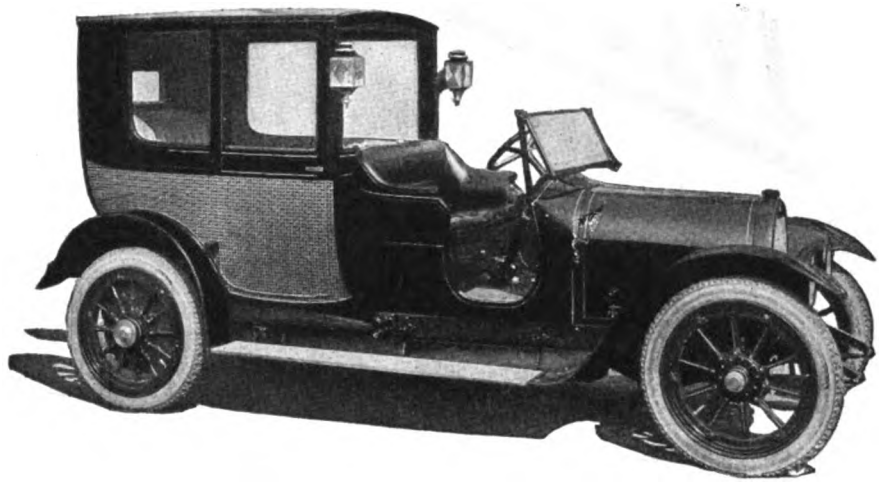
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The BREWSTER BODY

Acme of Refinement and Luxury



BROUGHAM——BREWSTER CHASSIS

Painted and Varnished With Valentine's Materials

In the old carriage days, when the name Brewster was supreme, the house of Brewster used nothing in its painting department except Valentine's.

Luxury- and refinement-loving America still turns to Brewster when it wishes the superlative in body-making, and the Brewsters, in securing the superb finish of their work, still use nothing but Valentine's undercoats, colors and varnishes.

One hundred and seven years of body-building have taught them that this is the best and surest way to secure perfection. The Brewsters attribute their success in part to their use of Valentine's materials.

There is a lesson here to the paint shop that wants to attain sure results in the way of good work and consequent *Profit*.

Send for our book, "*Automobile Painting Systems.*"

VALENTINE & COMPANY

Manufacturers of High-grade Varnishes and Colors

456 Fourth Avenue **New York**

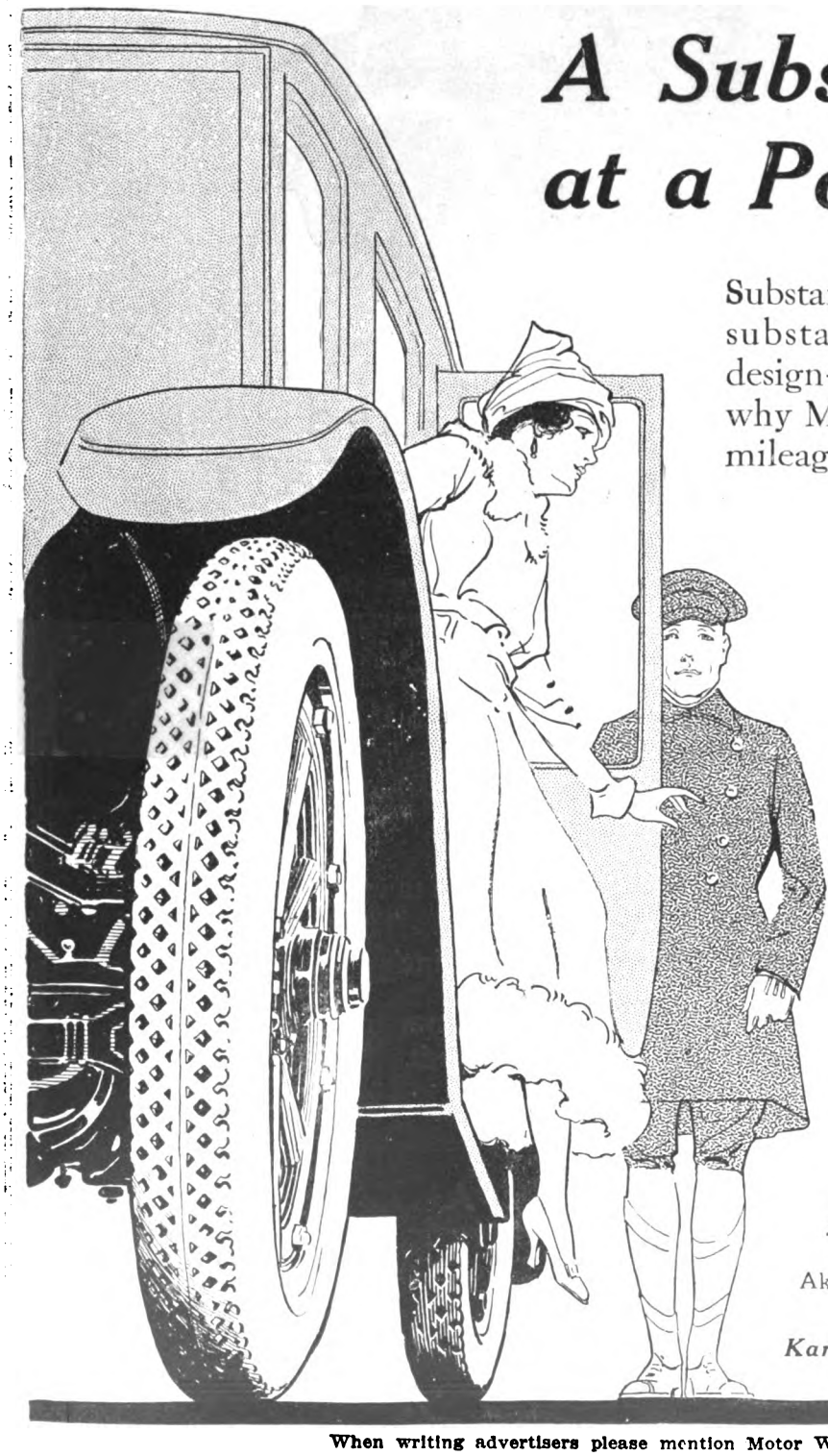
343 So. Dearborn Street, CHICAGO **74 Pearl Street, BOSTON**

TRADE VALENTINES VARNISHES MARK

When writing advertisers please mention Motor World—It identifies you

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MASON MEANS MORE MILEAGE



A Substantial Tire at a Popular Price

Substantial quality in raw materials; substantial workmanship, sensible design—these are the simple reasons why MASON is really "meaning more mileage" for car owners.

And MASON is sold at popular prices. Is it any wonder that the MASON factory is already overtaxed to meet dealers' demands for this substantial tire?

MASON has established itself in the automobile world in remarkably short time. Sturdy MASON quality and the frank MASON dealer proposition are making us hosts of friends in the trade.

Are you acquainted with this MASON plan? Some few distributing territories are still open.

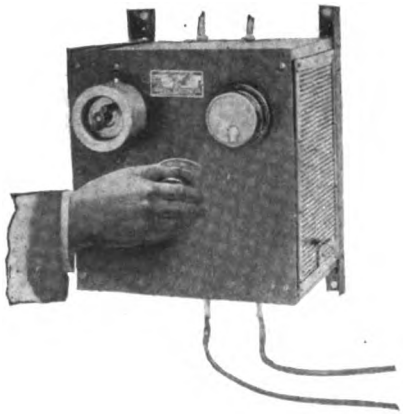
MASON Tire and Rubber Co.
Factory, Kent, Ohio

Akron suburb

Direct Factory Branches in
Kansas City Cleveland New York

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Tungar RECTIFIER



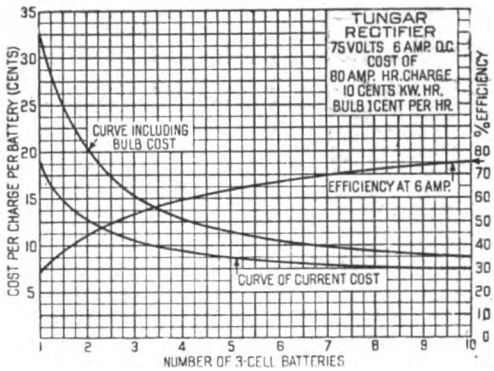
Efficiency

Realizing that high efficiency is one of the most essential points to be considered if one is contemplating the purchase of a battery charger, we are showing below just what this 6 amp., 75 volt Tungar will do.

Note these costs for an 80 ampere hour charge:

9 cents per 3-cell battery when charged in group of ten.

12 cents per 3-cell battery when charged in group of five.



Just the rectifier that is needed in battery service stations and garages.

When charging ten 3-cell batteries at full load it reaches a 75% efficiency.

Not only is the Tungar highly efficient, but its low first cost, simplicity of operation, flexibility of service, and durability make it a battery charger of rare qualifications.

Ask your jobber or write to the G-E Sales Office nearest you for the booklet you are most interested in.

Booklet 3412 describes the 6 amp., 75 volt Tungar, capacity one to ten 3-cell batteries.

Booklet 3411 describes the 6 amp., 15 volt Tungar, capacity one to two 3-cell batteries.

Booklet 3407 describes the 2 amp., 7.5 volt Tungar, capacity one 3-cell battery.

General Electric Company

General Office: Schenectady, N.Y.

ADDRESS NEAREST CITY

Atlanta, Ga.
Baltimore, Md.
Birmingham, Ala.
Boston, Mass.
Buffalo, N. Y.
Butte, Mont.
Charleston, W. Va.
Charlotte, N. C.
Chattanooga, Tenn.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Columbus, Ohio
*Dallas, Tex.
Dayton, Ohio
Denver, Colo.
†Detroit, Mich.
Des Moines, Iowa
Duluth, Minn.
Elmira, N. Y.
Erie, Pa.
*El Paso, Tex.
Fort Wayne, Ind.
Hartford, Conn.
*Houston, Tex.
Indianapolis, Ind.
Jacksonville, Fla.
Joplin, Mo.
Kansas City, Mo.
Knoxville, Tenn.
Los Angeles, Cal.
Louisville, Ky.
Memphis, Tenn.
Milwaukee, Wis.
Minneapolis, Minn.
Nashville, Tenn.
New Haven, Conn.
New Orleans, La.
New York, N. Y.
Niagara Falls, N. Y.
*Oklahoma City, Okla.
Omaha, Neb.
Philadelphia, Pa.
Pittsburgh, Pa.
Portland, Ore.
Providence, R. I.
Richmond, Va.
Rochester, N. Y.
St. Louis, Mo.
Salt Lake City, Utah
San Francisco, Cal.
Schenectady, N. Y.
Seattle, Wash.
Spokane, Wash.
Springfield, Mass.
Syracuse, N. Y.
Toledo, Ohio
Washington, D. C.
Youngstown, Ohio

*Southwest General Electric Company †General Electric Company of Michigan.
For CANADIAN BUSINESS refer to Canadian General Electric Company, Ltd., Toronto, Ont.
GENERAL FOREIGN SALES OFFICES, Schenectady, N. Y.; 30 Church St., New York City; 83 Cannon St., London, E. C., England. 0854

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Low Mileage Cost, Satisfactory Returns

Lowest cost per mile is argument enough to sell a tire to any motorist living. Most tires claim lowest cost, but the one that actually produces it is the tire for you to handle.

Empire Tires

do actually give more miles per dollar than any of thirteen other leading tires. Read this table—it is authentic, based on the adjustment basis of each tire—34 x 4 size.

	Cost per Mile	List Price		Cost per Mile	List Price
Empire Red	**.0062**	**$31.45**	7th Tire	.0069	$34.60
Empire Gray	**.0064**	**25.75**	8th "	.0067	33.85
1st Tire	.0064	22.40	9th "	.0072	29.10
2nd "	.0064	22.40	10th "	.0087	35.10
3rd "	.0064	22.40	11th "	.0088	24.20
4th "	.0070	24.55	12th "	.0069	35.20
5th "	.0064	22.40	13th "	.0074	26.20
6th "	.0075	26.35			

Not only do Empire Tires equal any others in low mileage costs, but excel in long profits. Empire Tires appeal to the eye and are a permanent advertisement for you. They are continuously advertised.

Empire Red Tires are adjusted on a 5000-mile basis. Empire Gray Tires are adjusted on a 4000-mile basis.

Write or wire today for our unusual proposition.

EMPIRE TIRE AND RUBBER CORPORATION
Home Office and Factory, Trenton, N. J.

BRANCHES AND OFFICES:

Boston	Buffalo	Chicago	Detroit	Newark
New York City	Philadelphia	Pittsburgh	Los Angeles	Minneapolis

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Guaranteed to Take the Place of 3 or 4 Horses for any Farm Work—or Money Refunded

PRICE

$125

Ready to Attach to Any FORD



Liberal Dealers' Proposition

No Large Deposits Required

We Finance Our Own Business

DEALERS

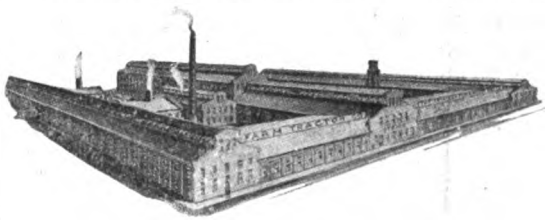
THE 20TH CENTURY FT FARM HORSE

Here is a Big—New Business with Tremendous Profits Waiting

Right when the farm tractor demand is *big, new and growing* the 20TH CENTURY FARM HORSE—at a price every farmer can afford—opens the field for thousands of profitable sales to ready-made customers who buy.

Right *now*, with the biggest farming season the country has ever known just about to open—with thousands of used Ford cars thrown on the second-hand market—is the chance of a life-time to step in and clean up in *exclusive territory*, with a *new farm necessity* at a price *that sells*.

Farm Tractors from Fords and the Twentieth Century Farm Horse Sell Fast To Thousands



Manufacturing Machinery Since 1887

—when you get behind our **big, helpful advertising campaign** and push.

The 20TH CENTURY FARM HORSE is **guaranteed** to do the work of 3 or 4 horses on any farm. Plows 4 to 6 acres in 10 hours with 2 bottom 12" plows—and does it easily, without a strain on motor. Less strain on Ford mechanism than a 1-ton truck unit. Interchangeable gears for speeds from 2 miles per hour for plowing to 10 miles per hour for hauling. Readily changed in 15 minutes. Tractor unit installed by anyone with pliers and a monkey wrench in 2 hours.

USERS' COUPON

The Farm Tractor Co., Fond du Lac, Wis.

Send me **free** illustrated literature and complete details regarding "THE TWENTIETH CENTURY FARM HORSE"

Name .....

Address .....

← USE THE COUPON—*NOW* →

The 20th CENTURY FARM HORSE Means Nothing But Profits for USERS AND DEALERS ALIKE

THE FARM TRACTOR COMPANY

FOND DU LAC **WISCONSIN**



The 20th Century Farmer Horse



—At Work

DEALERS' COUPON

The Farm Tractor Co., Fond du Lac, Wis.

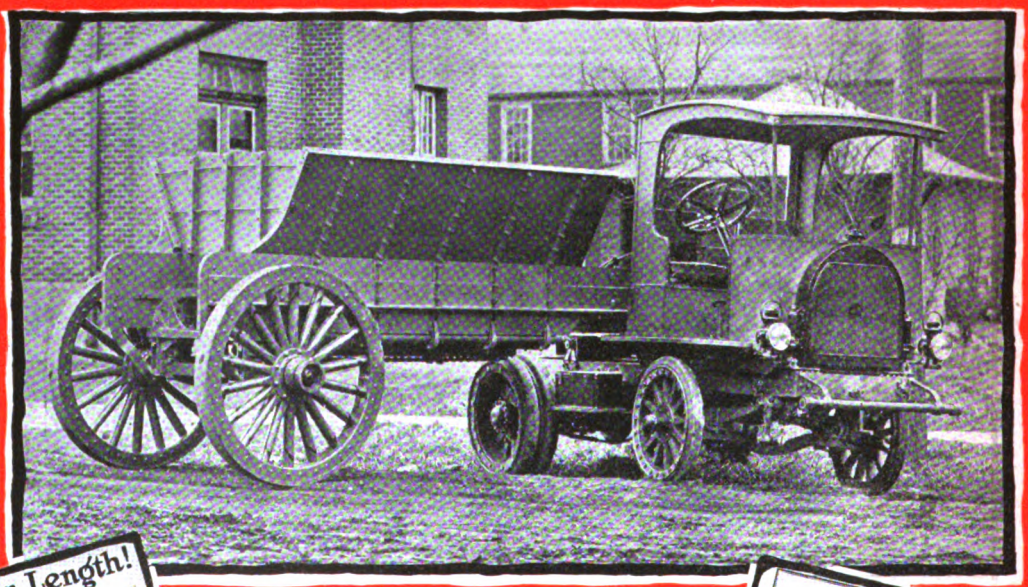
Send me **free** illustrated literature and complete details of dealers' offer, with discounts and co-operative selling plan.

Name .....

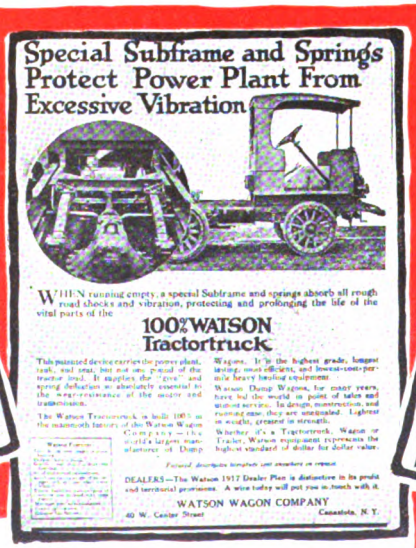
Address .....

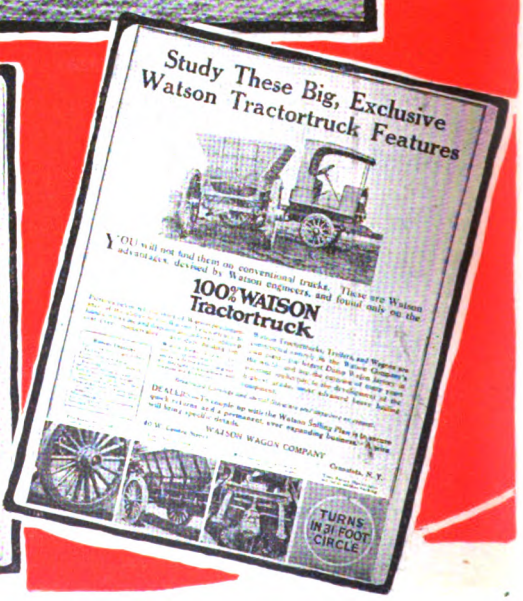
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The 100% WATSON Tractortruck









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The Big Spring Drive Is On

OF all the new propositions that have come, full-loaded with high explosive selling power, from modest little Canastota—the home of the Watson Wagon Company—this perhaps is the biggest, hardest-hitting, longest-ranged, broadest-sweeping and quick-acting of them all.

Look it squarely in the eye, from head to foot. Think of the vast market still undeveloped for the sale of tractortrucks, and then—act quickly—broadly—enthusiastically.

The New 100% Watson Five Ton Tractortruck Has Made Its Debut to the Trade and User!

Get that—*WATSON* Tractortruck—built 100% in the mammoth factory of the Watson Wagon Company, the largest manufacturers of Bottom Dump Wagons in the world—makers of practically all of the Heavy Hauling Bottom Dump Trailers now in use behind various makes of gasoline tractors.

What will the Watson Tractortruck do? Everything *any* truck on the market can do and a lot of things no conventional truck *can* do—do them better, quicker, at lower operating cost, for a far greater period of consistent, continuous performance.

Here are a few of the big features of the Watson Tractortruck:

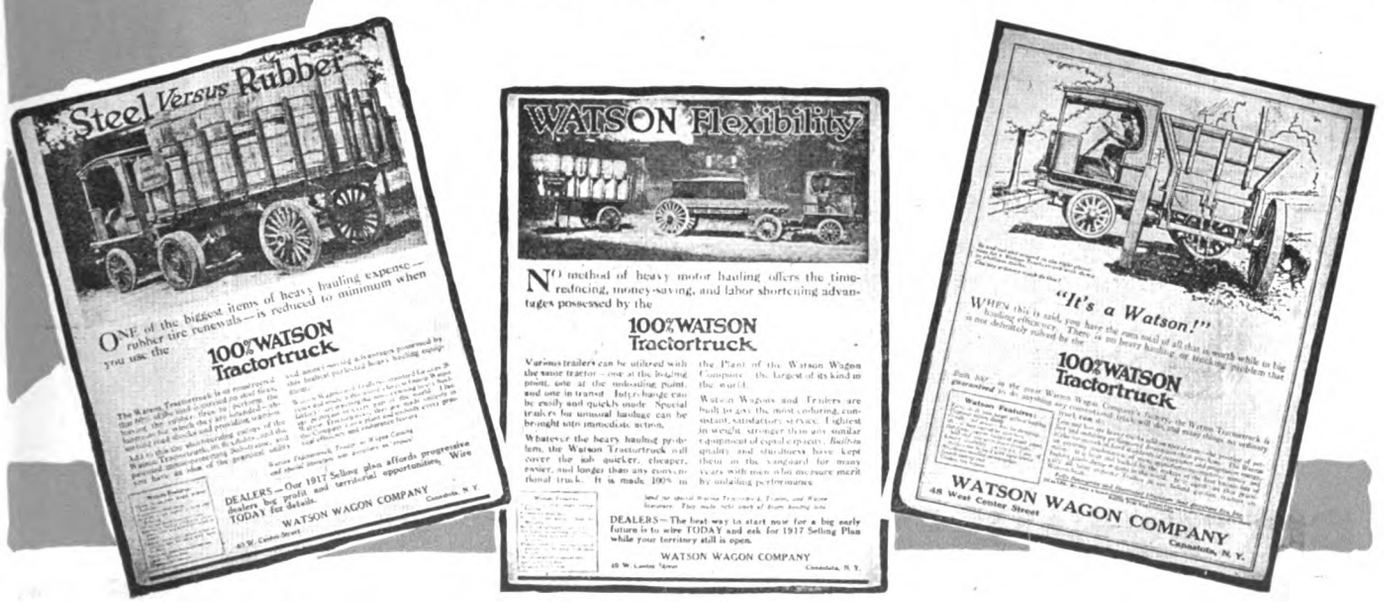
Turns in its own length without backing; Undercut Bottom Dump; Gravity—not power—does the dumping; 60% of the load carried on economical steel tires—not expensive rubber casings; sub-frame carries weight of power plant, tank and seat when truck is running empty; utmost flexibility—various types of trailers can be used with the same tractor; lowest upkeep cost; greatest tire service.

The reproductions below are but a few of the advertisements we are running in magazines of big national circulation to acquaint users of heavy hauling equipment with the superior merits of the Watson Tractortruck.

The Watson Tractortruck is a big proposition for big men with big heavy hauling jobs to do. It calls for dealers of big caliber who have grown big because they could recognize championship timber when they saw it. They're the dealers who'll strike while the iron is at white heat and wire for full facts and figures covering our 1917 Selling Plan profit particulars, terms, and territorial arrangements.

WATSON WAGON COMPANY

40 W. Centre Street **Canastota, N. Y.**



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BENFORD'S



"Fifteen Years of Spark Plug Success"—

DISTINGUISHED BY ITS COAT OF GOLD

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GOLDEN GIANT

$150,000

will be invested in the Golden Giant Advertising and Selling Campaign this year

BEGINNING with April, THE SATURDAY EVENING POST and other big national magazines and trade journals—leaders in their field—will carry the Golden Giant story to every motorist in the United States.

The tremendous success of last year's advertising and selling campaign—the rush of business it brought to Golden Giant dealers everywhere—justifies this greater advertising and sales effort.

For fifteen years the demand for our product has steadily grown bigger and bigger—and it all comes back to the supreme quality of the Golden Giant Spark Plug itself.

With a product based on the solid rock of quality, with our dealers safeguarded by the most liberal guarantee ever written, we have become one of the largest spark plug manufacturers in the country.

The Golden Giant Spark Plugs have earned their distinguishing coat of 24-karat gold.

This big smashing campaign will make millions of motor car owners buy Golden Giants from you dealers.

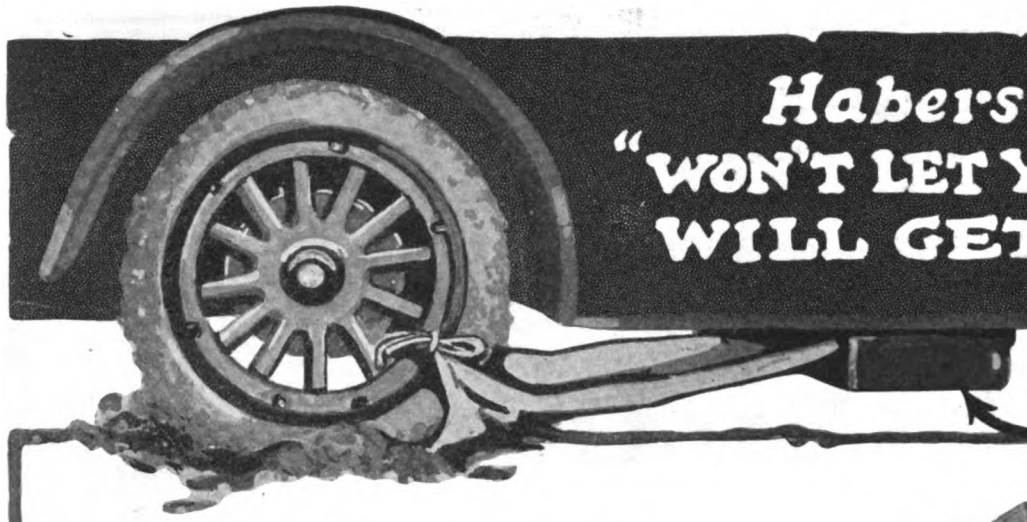
Get Your GOLDEN GIANT Stock Ready!
Watch your profits pyramid!

THE ARISTOCRAT OF SPARK PLUGS

$1.00 Set

BENFORD MFG. CO.
MT. VERNON NEW YORK

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Haberstick's "WON'T LET YOU STICK" WILL GET YOU OUT

The device is amply covered by LETTERS PATENT in the United States and Canada. Every claim made by us is backed by a strong protective guarantee.
Patented June 29, 1915—October 17, 1916

"Makes Its Own Road"

When you need it—you slip the metal container into the cleats under your running board. You've kept it covered in your tool box and it's perfectly dry. Then you draw the end of the canvas tread out of the slot in the container and tie the ropes to a handy spoke and start your engine. The tread wraps itself around your tire and gives you a dry cloth surface with heavy rope insertions that takes hold in mud, snow, ice, sand, etc., and gets you out like a shot.
It's like laying a dry road for yourself.
Haberstick's "Won't Let You Stick" is the cheapest safety device on the market. The tread can be washed and replaced in the container or refills obtained at slight cost.
Attractive proposition for dealers—write us today for discounts and literature. Do not miss this splendid seller.
Price, $6. Motorists whose dealer cannot supply them may obtain "Won't Let You Stick" direct. If they send their dealer's name, we will prepay charges.
A heavy construction made for trucks, etc. Write for information.

AUTO ACCESSORIES COMPANY Wheeling, W. Virginia



THE BENEFIT YOU GET—

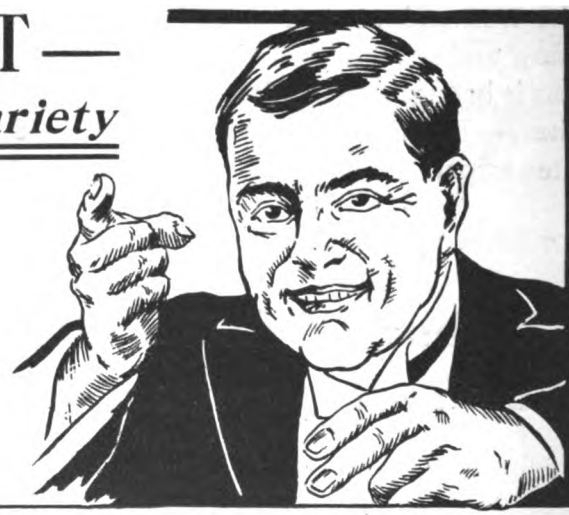
is of the compound interest variety

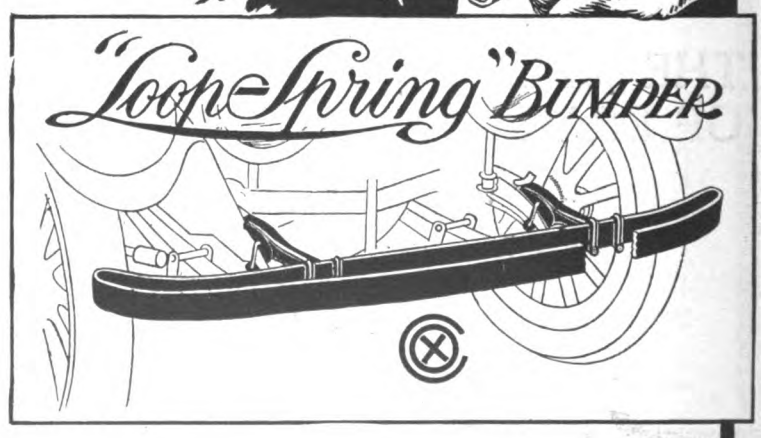
"You know Jim is a very particular man—if that 'Loop Spring' Bumper is on his car—believe me it's going to be on my car," says Tom, and Dick gets his because of Tom's recommendation, and all the time this—

90% "Clamp-on" Bumper with "Loop Spring"

is more than holding its own and making friends—because it meets the demand for a Bumper on which the bar itself is resilient. You can see that it is a continuous spring.

Its unfailing popular approval is because its gallantry of conduct in action is sure. O yes—get catalog No. 43.





Cox Brass Manufacturing Co.
Albany, N. Y.

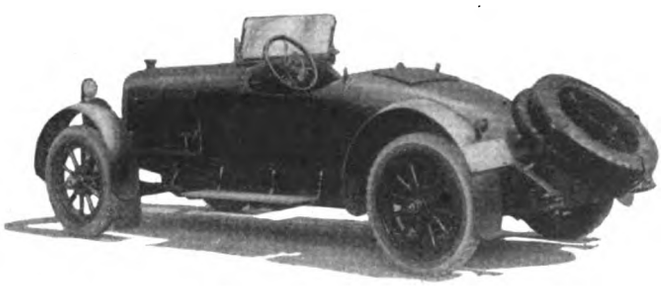
CHICAGO
2129 Michigan Ave.

NEW YORK
1733 Broadway

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The Walton *Special*

Supplied for
Hudson
National
Mitchell
Packard



A Turtle-back Speedster, Seating Three

Supplied for
Cadillac
Chandler
Paige-Detroit
or other cars of 123″ to 129″ wheelbase

A Custom-built Body Produced on a Quantity Basis

Dealers in all parts of the country are finding profit and advertising value in supplying these specials for their customers. The striking beauty of this body on the chassis you sell will create much favorable interest in your car and for your sales agency.

Bodies fitted to chassis in New York, or shipped to you for mounting—the fit guaranteed.

Send for detailed folder and liberal dealer's terms

Walton Body Co., Inc., Exclusive Custom Bodies 110-114 West End Ave. **New York**

LPCHO

HALLADAY BUMPERS are standard throughout the entire motor car industry—representative of the highest point to which bumper design and construction have been brought.

HALLADAY

Bumpers Meet Every Requirement

Regardless of the make of car, one HALLADAY Bumper or another will meet its needs for either front or rear protection. A variety of standard and special models at a wide range of prices satisfy every demand. Obtainable at most good dealers and supply stores. Send for free catalog.

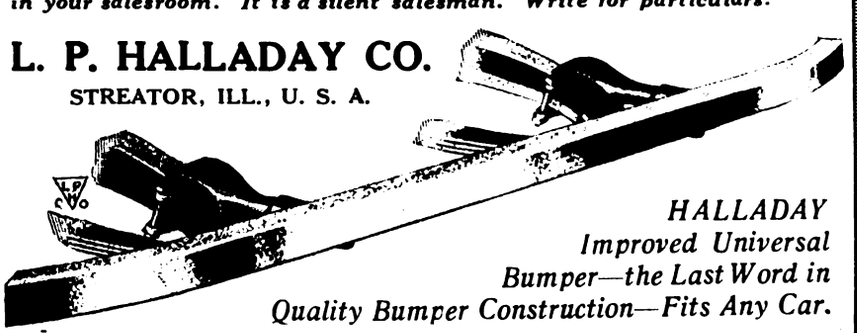
DEALERS: Install a handsomely finished HALLADAY Bumper Rack in your salesroom. It is a silent salesman. Write for particulars.

Special Bumpers
for
Cadillac, Cole, Chevrolet, Franklin, Ford, Packard, Pathfinder, Saxon "6", Briscoe, Dodge and Others.

Special Rear Bumpers
for
Simplex, Buick, Cadillac, Mitchell, Overland, Saxon

Send for Complete Information

L. P. HALLADAY CO.
STREATOR, ILL., U. S. A.



HALLADAY Improved Universal Bumper—the Last Word in Quality Bumper Construction—Fits Any Car.

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Come to Detroit
The Automobile Center and

With the New Building and Thousands of Dollars Worth of New Equipment, Our's is the Largest Exclusive Auto School in the Country

LEARN THE AUTOMOBILE BUSINESS—EARN $75. TO $300. A MONTH

Detroit trained men get preference and get jobs quickly. Think what it means to learn in the Michigan State Auto School. Factories endorse our School, glad to employ our graduates and offer them territory. Men are needed everywhere as testers, repair men, chauffeurs, garage men and service men. Hundreds of our graduates start in business for themselves.

Get Better Job—or—Go In Business

We teach you to handle any auto proposition. Students actually build cars from start to finish, getting factory training in assembling, block-testing, road testing, everything. Special complete course in Oxy-Acetylene brazing, welding and cutting, separate from regular course. All leading types of starting, lighting and ignition systems in operation. Six-cylinder Lozier, eight-cylinder King used for road instruction. We have a new Chalmers "6-30" chassis with 3400 r.p.m. motor, also Willys-Knight 1917 chassis, Maxwell 1917 chassis, Saxon 1917 chassis, Studebaker "6" 1917 chassis, Hudson Super Six 1917 chassis, Oldsmobile "8" 1917 chassis, Cole "8" 1917 chassis, Briscoe 1917 chassis, Detroit Electric 1917 chassis and Winton "6" chassis. Just added Delco System used in Buick, Hudson and Packard Twin-6.

Detroit Is the Place to Learn—Start Any Time

There are 44 auto factories in Detroit and 140 accessory and parts factories. We operate Westinghouse, Autolite, Bijur Service Stations. This has added thousands of dollars' worth of equipment and makes our electrical department unequaled. Students get actual experience in handling all kinds of electrical auto equipment. We have just installed a Sprague Electric Dynamometer for block-testing purposes for students' use. The Michigan State Auto School is the only Auto School having this equipment. Auto factories need Dynamometer men constantly. School open all the year. You graduate in from 10 to 12 weeks. Enter classes any time, any day. Three classes daily; morning, afternoon, evening. There is a great demand for Michigan State Auto School students. Auto factories call for men constantly to fill permanent places.

Money Back Guarantee

We guarantee to qualify you in a short time for a position as chauffeur, repair man, tester, demonstrator, garage man or automobile dealer, paying from $75 to $300 monthly, or refund your money. We have constantly more requests for Michigan State Auto School Graduates than we can supply.

Follow the Crowd to the Michigan State Auto School. This is one of the 1916 classes. Come to Detroit.





Auto Factory Co-operation—Additional Building and Equipment

We have arrangements with the Auto factories to put them in touch with men who intend going into business for themselves. Come here and start right. Thousands of dollars' worth of new equipment, plenty of room for students to work in our new building at 687-89-91 Woodward Ave. Our school has grown by leaps and bounds, students come from all over the world.

AUTO FACTORIES ENDORSE OUR SCHOOL

The Leading Auto Factories in Detroit, as well as in other cities, endorse our school. They put their latest complete chassis and motors in our school and employ our graduates in the factories and service stations. They know our school is right.

Dealer's Opportunity

We can supply competent high grade men to handle your garage and repair shop. Our Graduates are especially well fitted to handle electric troubles. They get actual experience while in their final work. We are constantly supplying men to all parts of the country.

ACT QUICKLY—NOW —DON'T WAIT

Get full particulars. "Auto School News" and New Catalog, both absolutely free, or better still, jump on a train, as hundreds have done, and come to Detroit, the "Heart of the Automobile Industry," and learn right.

Michigan State Auto School

The Old Reliable School
A. G. ZELLER, President

8203 Auto Bldg., 687-89-91 Woodward Ave., 11-19 Selden Ave. DETROIT, MICHIGAN, U. S. A.



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Garage Necessities That Draw Trade Your Way



Get the edge on competition by installing a Curtis Air Compressor. It will draw trade your way and hold business for you against keen methods of competitors and "cut prices".

Curtis outfits furnish **Air Free From Oil.** Just what the auto owner is looking for. It means fewer blow-outs, fewer punctures, increased mileage, less repairs. Saves him many dollars upkeep every month—makes him your friend for life.

CURTIS AIR
FREE FROM OIL

The Curtis Air Compressor is built by manufacturers who have had 25 years experience as specialists in this line. It is the only Garage Air Compressor so designed that it can't flood the cylinder with more oil than it needs or can use. No danger of forcing oil into the air line. Guaranteed to stand up under severest strains of hard usage and give good, efficient service at all times and under all conditions.

A Paying Investment

Besides pulling trade your way—furnishing air **Free From Oil**—note what a Curtis Air Compressor will do for you. You can **Paint** with it—use it for **Cleaning** metal bodies—use it on your **Vulcanizer**—use it **Lifting** heavy loads—for **Blowing** dust from cushions and chips and drillings from tools—for **Operating** kerosene cleaners, sand blasts, power presses, pneumatic jacks—for **Pumping** oil and in numerous other ways.

5 Sizes—120 Combinations

Send coupon for full information and attractive prices. Find out about these Trade Getters—Money Makers. Our proposition is one that will appeal to you. Write TODAY. Or, ask your jobber for prices, but insist on the CURTIS.

Curtis Pneumatic Machinery Co.
1546 Kienlen Avenue St. Louis, Mo.
Branch Office: 531-B Hudson Terminal, New York



CURTIS CORRECT PRESSURE Tire Filling Station

will make your Garage the most popular one in town—a favorite stopping place for all motorists. Why? Because by merely turning the dial to size of tire, motorists can inflate tires to **correct** pressure, regardless of pressure carried in the storage tank—eliminates extra strain on tires caused by over inflation.

By securing correct pressure for tires, rim cutting is prevented; punctures and stone bruises are almost entirely eliminated; mileage is increased; tire expense reduced. A soft tire rides easily, but wears out quickly.

Send coupon for description and prices of full equipment all ready for connection to your air supply lines. We'll send you full details and tell you how a Curtis Station **pays for itself in new business brought in.**

CURTIS PNEUMATIC MACHINERY CO.
1546 Kienlen Ave. St. Louis, Mo.

Gentlemen: Please send me full details regarding ☐ Curtis Garage Air Compressor ☐ Curtis Correct Pressure Tire Filling Station
Also low prices and your proposition.

Name.....
Address.....
Jobber's Name.....
Address.....

THE LAIDLAW CO., Inc.
16 W. 60th St. Now York City

AUTOMOBILE FABRICS

A Fabric for Every Purpose for Open, Closed, and Convertible Bodies

---



An **Ounce of Prevention is better than a Pound of Cure**

The Bill Automatic Spark Retarder

retards the spark on a Ford car to a point of absolute safety while starting, and instantly advances it to the running point when the motor starts.

Positive insurance against disastrous back fires for **$3.50.**

Can you afford to take the chance?

Write for full details.

Bill Manufacturing Co.
Laporte, Ind.

Compare the big

One Ton Selden Truck

CHASSIS PRICE **$1385** F.O.B. Rochester N. Y., U. S. A

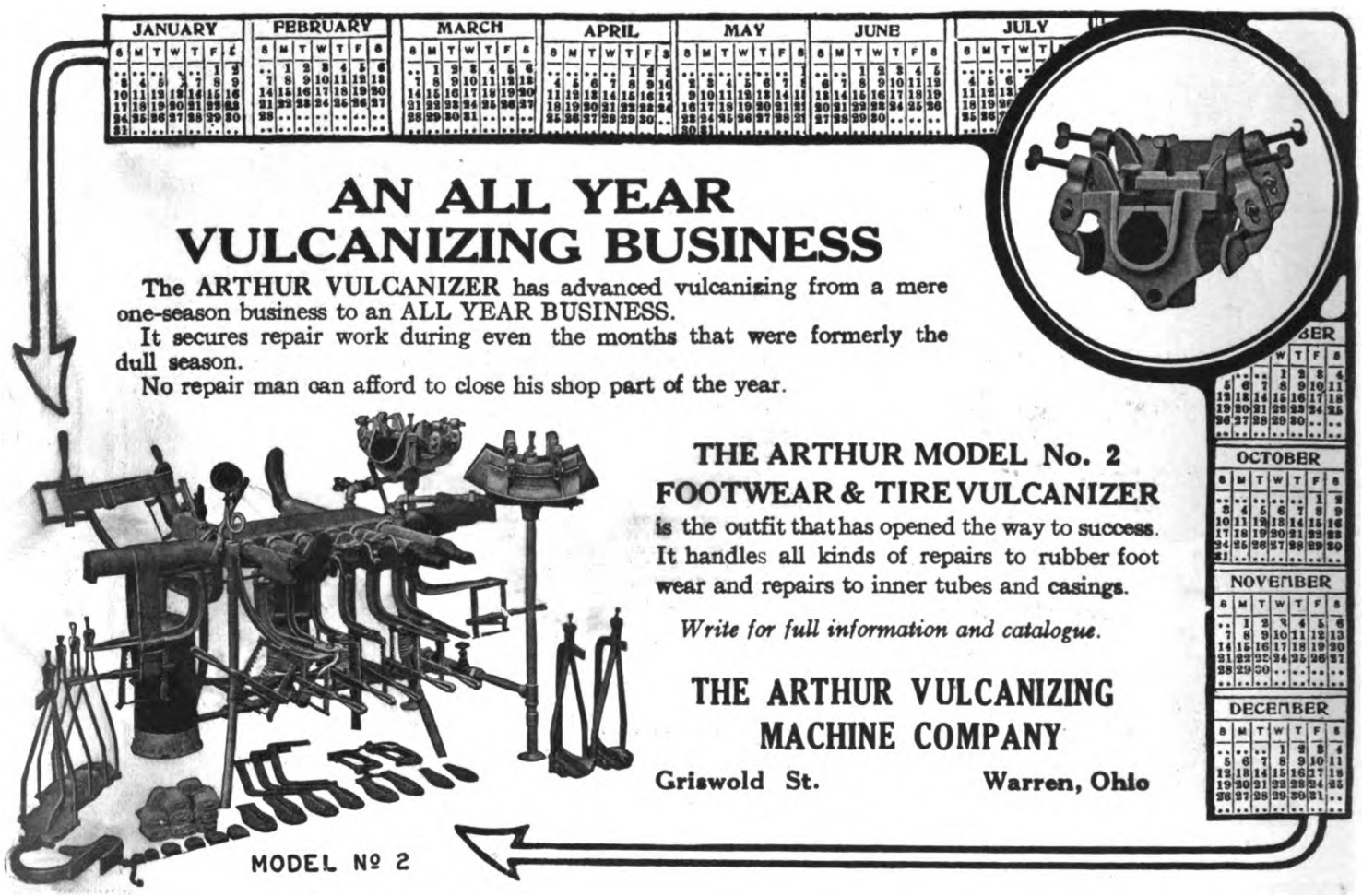


part for part with **any** "quality" truck of a ton and a half rated capacity—and you will find bigger, better construction — with Selden "In-built Quality" added.

DEALERS: This is the kind of a truck that will make sales for you. It's only one of the Selden Complete Line of ¾-ton, 1-ton, 2-ton, 3½-ton and 5-ton models. Get our new Sales Proposition **quick!**

Selden Truck Sales Co.
Rochester, N. Y., U. S. A.

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AN ALL YEAR VULCANIZING BUSINESS

The ARTHUR VULCANIZER has advanced vulcanizing from a mere one-season business to an ALL YEAR BUSINESS.

It secures repair work during even the months that were formerly the dull season.

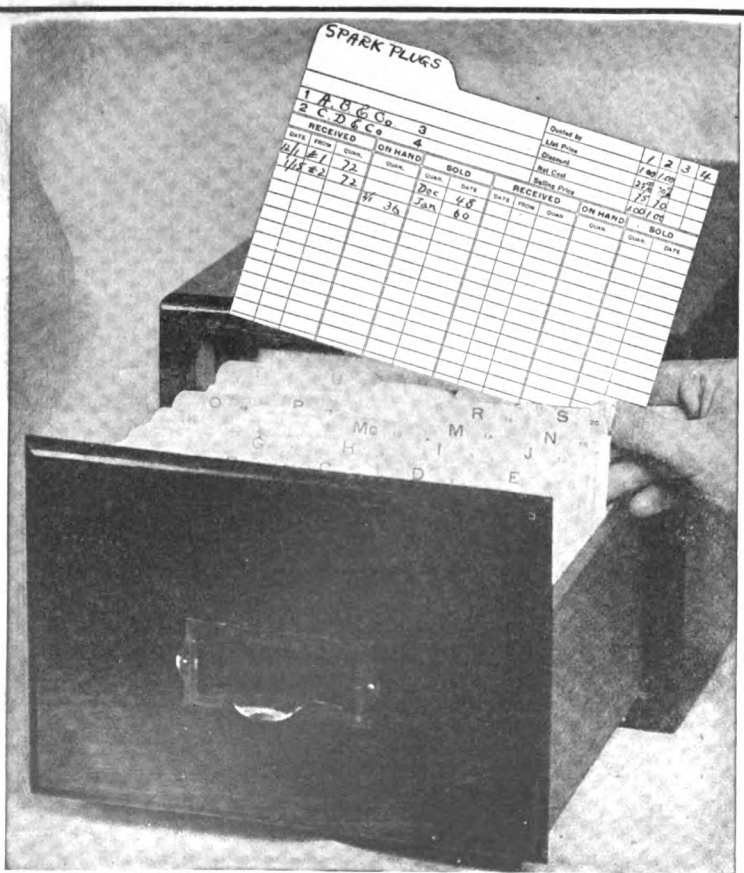
No repair man can afford to close his shop part of the year.

THE ARTHUR MODEL No. 2 FOOTWEAR & TIRE VULCANIZER is the outfit that has opened the way to success. It handles all kinds of repairs to rubber foot wear and repairs to inner tubes and casings.

Write for full information and catalogue.

THE ARTHUR VULCANIZING MACHINE COMPANY

Griswold St. Warren, Ohio



Motor World's Inventory Cards. Size 4 x 6, $1.00 per 100; $9.00 per 1000. Size 5 x 8, $1.25 per 100; $12.00 per 1000. Outfit 46A, consisting of 500 Cards, 4 x 6. Set of Alphabetical Guides, Oak Cabinet, Complete, $8.75. Outfit 58A, consisting of 500 Cards, 5 x 8. Set of Alphabetical Guides, Oak Cabinet, Complete, $11.00.

You Need This System!

This Inventory and Perpetual Stock Record card system shows plainly, quickly and accurately the condition of your stock of any article on hand—its cost and selling price—how many bought, how many sold, and the balance on hand.

The System is essential to good business methods. NOW is a good time to install it. Will pay for itself speedily, and prove a builder of profits. Act quickly. Send orders to:

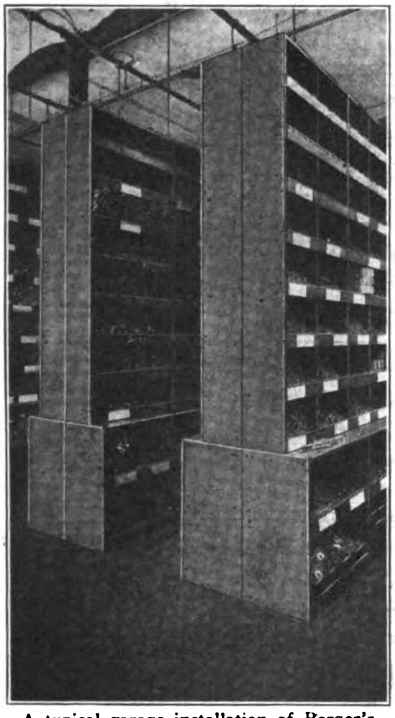
Motor World

System Department

239 West 39th St., N. Y. C.

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Save Time and Money In Your Garage



A typical garage installation of Berger's Steel Bins and Shelving.

AS repairs play a most important part in the profits of a modern garage, the storage and handling of the materials needed for this work should be given careful attention.

You can save wasted time, costly delays and lost materials by systematizing your stockroom—equipping it with

Berger's Steel Bins and Shelving

This equipment can be adjusted to accommodate materials of any size, shape and weight. Articles are kept in perfect condition and in a definite and accessible place.

You will know at all times the quantity on hand of every kind of material you carry—no danger of running short or being overstocked.

Berger's Steel Bins and Shelving are fire retardant and indestructible—cannot warp, split or rot; require 25% less floor space than wood; carry heavy loads; require no upkeep expense, and give a lifetime of service at reasonable cost. Far superior to wood from every standpoint.



A typical tire equipment of Berger's Steel Tire Racks

Berger's Steel Tire Racks

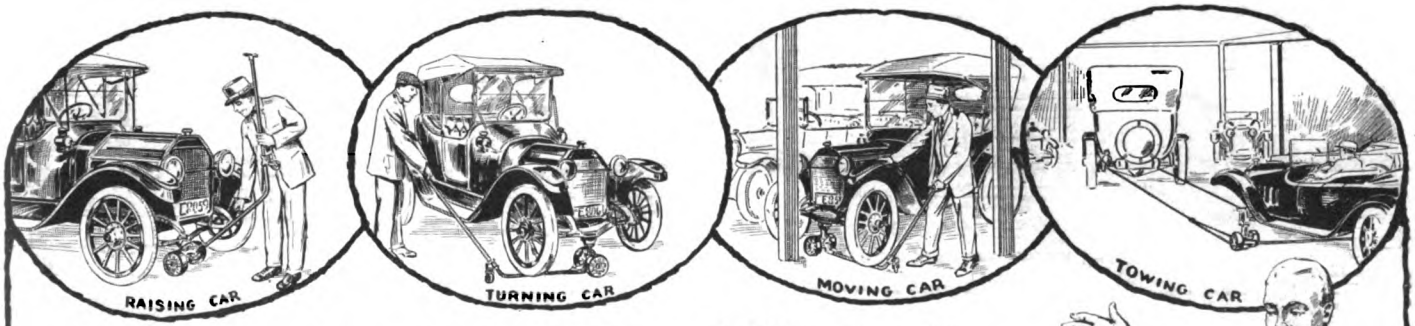
These racks keep tires where oil, dirt and grease cannot injure them. They retain shape of tires, save time in handling and economize on valuable floor space. Racks are firm and rigid, and can be readily taken apart or new units added as required.

Write for full Particulars and Catalog R. W.

The Berger Manufacturing Co., Canton, O.

Branches: Boston New York Philadelphia Chicago St. Louis Minneapolis San Francisco Los Angeles

Export Dept.: Berger Bldg., New York City, U.S.A.



"He's Our Best All-Round Worker"—

He's so strong he can lift any car twice as easy as any jack, and he can move it anywhere if we need space. Let me introduce him. He is

Ellis-Smith Combination Jack

One look will show you that he is no ordinary jack.

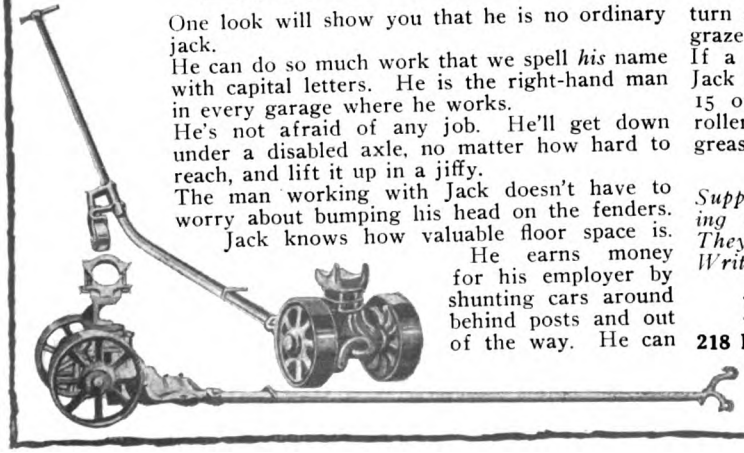
He can do so much work that we spell *his* name with capital letters. He is the right-hand man in every garage where he works.

He's not afraid of any job. He'll get down under a disabled axle, no matter how hard to reach, and lift it up in a jiffy.

The man working with Jack doesn't have to worry about bumping his head on the fenders.

Jack knows how valuable floor space is. He earns money for his employer by shunting cars around behind posts and out of the way. He can turn a car in its own length and never graze a fender or break a lamp.

If a disabled car has to be towed in, Jack is on the job. He'll bring it in at 15 or 20 miles an hour, for he has 10-inch roller-bearing wheels, equipped with patented grease cups.



You Ought To Know Him Better

Suppose you let us send you literature describing him and other members of his family. They are all labor, time and money savers. Write us now.

ELLIS-SMITH MFG. CO.

218 NIAGARA ST. BUFFALO, N. Y.

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FITNESS

NO automobile component ever entered the field better qualified for service than does each New Departure ball bearing.

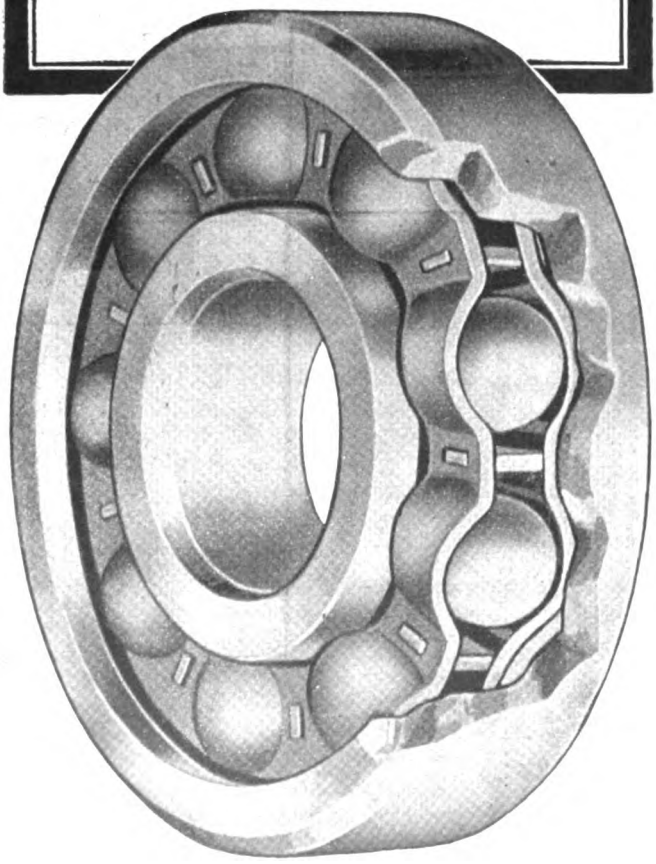
After the "raw" steel passes the scrutiny of the metallurgists and chemists, and receives the most advanced heat treatment, the parts are evolved after arbitrary inspection—not only between each operation—but during every operation.

The final superficial inspection is the 272nd "okay" which that bearing has received.

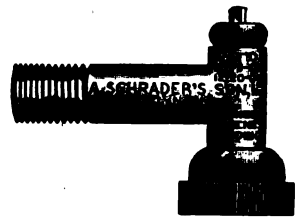
What better preparation could there be for perfect performance?

THE NEW DEPARTURE MFG. CO.
Conrad Patent, Licensee
Bristol, Connecticut

NEW DEPARTURE BALL BEARINGS



Tire Pumping And Air Testing Made Easy.

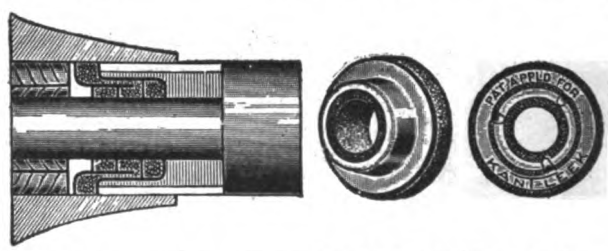


MOST of your customers know that it is death to tires to run them insufficiently inflated. A great many of them however, neglect to test their air pressure because this operation until now has been tedious and time consuming.

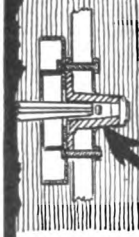
You will be doing them a favor if you will bring to their attention the fact that with a **SCHRADER UNIVERSAL PUMP CONNECTION** this hitherto complicated operation has become both easy and agreeable.

The **SCHRADER UNIVERSAL PUMP CONNECTION** retails in the U. S. A. for thirty-five cents and you should have no difficulty whatever in selling as many of them as you have customers. It will also help you to sell gauges to those of your customers who until now have been deterred from testing their air pressure by thought of the labor and loss of time involved.

A. SCHRADER'S SON, INC.
783-803 Atlantic Ave. Brooklyn, N. Y.



KANT-LEEK WASHERS
for Fords
cure leaky rear-axles.



Stop the annoyance and danger of leaking rear axles. Avoid greasy, dirty hubs and wheels, oil-rotted tires and oil-soaked brake-bands.

APPLY A SET OF KANT-LEEK WASHERS

to your Ford, and forget your troubles. Simple, nothing to adjust, and entirely dependable. Convenience, cleanliness and safety require them on every Ford.

Price Per Set, - - - - - 90c

SPECIAL DISCOUNT FOR DEALERS AND JOBBERS

KANT-LEEK MFG. COMPANY, St. Louis, Missouri.

Exclusive Selling Agent, HARRY BECKER
Room 306, Monroe Bldg., 104 S. Michigan Ave., Chicago

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Sootless Plugs

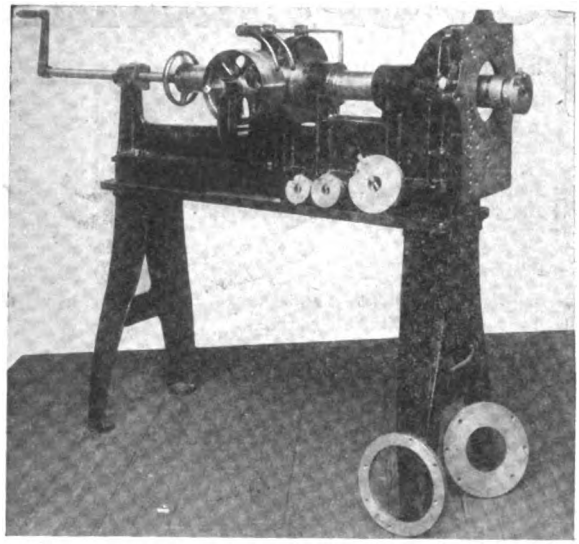


will make any car a more powerful and dependable car. Because ***Sootless*** multi-wound mica insulation — ***Sootless*** patented construction — ***Sootless*** over-size and extra-strength — make ***Sootless Plugs*** gas-tight, oil-proof, practically indestructible.

Sell *Sootless Plugs* — for better profits from your spark-plug trade.

Oakes & Dow Company
18 Chardon St.
Boston, Mass.

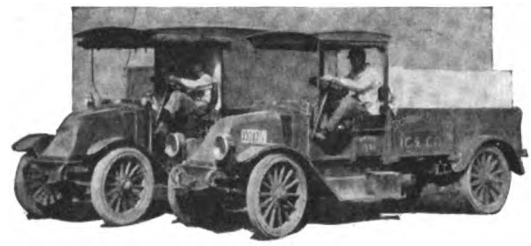
The Big Brass Plug



The Marvel Cylinder Re-boring Machine

Fully meets the requirements of the large and small repair shop where high-class and efficient work is demanded.
Is a machine (not a tool) of the highest order, power or hand driven.
Produces a class of work that makes firm friends of every customer.
Satisfied customers bring others.
Is simple, easy to adjust, speedy, accurate and can be successfully operated by anyone familiar with machine tools.
Re-bores scored, glazed and welded cylinders, or those worn out of true.
Successfully re-bores any type or size of engine block from one to twelve cylinders, and from 2½" to 8" in diameter.
Re-bores any ordinary four-cylinder block in less than two hours.
Re-bores accurately down to the fractional part of a thousandth of an inch.
Re-bores cylinders to a perfect, true circle.
Quickly pays for itself. Brings Dollars' worth of business never touched before.
Price is within the reach of every garage and repair shop.
PRICE, TERMS AND FULL PARTICULARS

Marvel Machinery Company
Dept. No. 9, 609-12 Boston Bldg. Minneapolis, Minn.



Our Own Trucks Surprise Us

Some INTERNATIONAL Registrations

The **International Motor Truck** leads all other trucks in operation in Ohio, Wisconsin, Michigan, Tennessee and Oklahoma, and in the cities of Chicago and St. Louis. In Michigan, for instance, the home of the motor truck, the **International** leads with 324 trucks as compared with 259 for the nearest competitor. Further than in these states and cities, the registration has not appeared. These are new figures, sent out by the separate states, and they show **International** popularity that surprises even us.

No more compelling argument than these facts and the successful operation of these thousands of trucks could be cited. The big factor in the huge and rapidly growing sales of **International** trucks is the record of increased profits, reduced hauling costs, and economical operation of **International**s in daily service in every line of business having loads to haul. Consider these

New Low-Price INTERNATIONALS

Model H—1500 lbs. capacity, internal gear drive (chassis) $1225
Model F—2000 lbs. capacity, internal gear drive (chassis) $1500

Prices cash f.o.b. factory.

Eighty-nine company branches and thousands of local distributors cater to the needs of **International** owners. Up-to-the-minute service is always at your hand. Write to the address below for attractive folders with all the details and full information. You owe it to the prosperity of your future to know more about the **International** motor trucks. **Now** is the best time to write.

INTERNATIONAL HARVESTER COMPANY OF AMERICA

(*Incorporated*)

155 Harvester Building, Chicago, U. S. A.

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The Profits Come Right Through To You

For less than the tip they would give your attendant at a Free Air Station, patrons of the ECO Prepayment Automatic Air Station get better, quicker, all-day and night service. They like it better—and *you get the profits.*

ECO

Prepayment Automatic Air Station
Is a Big Business Booster

For a limited time we ship to customers entitled to credit, if they desire, an ECO Air Station on the basis of $25.00 cash with order, $25.00 in 30 days and $25.00 in 60 days, while the ECO is taking in the money to pay for itself.

Electrically lighted at night. A 24-hour-a-day advertisement and salesman that does the business. Hose winds inside. Automatic cutoff valve prevents waste of air.

Furnishes water for radiator free. Pays for itself in short order.

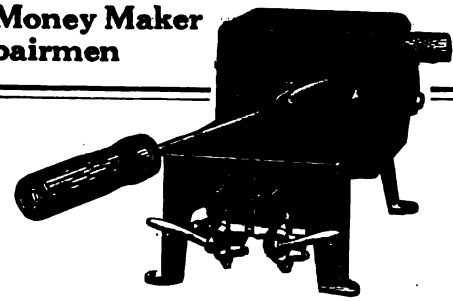
Order from your jobber or

ELECTRIC APPLIANCE COMPANY

Chicago San Francisco Dallas New Orleans



A New Money Maker for Repairmen **Write Today**



The Johnson Gas Furnace Makes Repairs Cheaper

Equipped with two powerful Auto-Blast Bunsens of the famous JOHNSON Direct Jet Type, the JOHNSON Gas Furnace is unsurpassed for heating soldering coppers, hatchet irons, capping steels, branding stencils, case hardening, heating for tempering, annealing, etc. Takes the place of an expensive blast furnace—

Gives Instant Heat of 1600° to 1800° Without An Air Blower

There is no waiting—no wasting of employees' valuable time—no intricate adjustment. Simply turn on the gas and the JOHNSON Gas Furnace is ready for use.

The secret of JOHNSON efficiency is the patented Direct Jet Regulator—permits absolute control of mixture of gas and air. Perfect combustion results regardless of pressure or quality of gas.

If your jobber cannot supply you, write direct for No. 101 JOHNSON Furnace, or free illustrated literature.

The Johnson Gas Appliance Co.
Cedar Rapids, Iowa

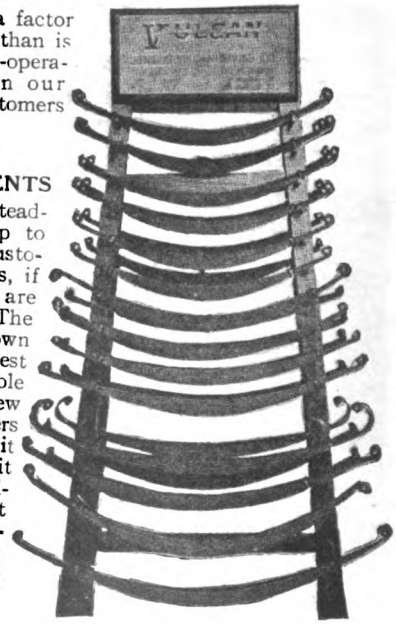
CO-OPERATION

Even the Splendid Quality of our Springs—

is no stronger a factor in our success than is the hearty co-operation between our dealers, our customers and ourselves.

SPRING REPLACEMENTS

—are going on steadily. They help to make new customers for dealers, if the new springs are good ones. The stand here shown is one of the best methods possible to attract new spring purchasers You can get it free, and with it the quickest deliveries and most thoughtful, helpful co-operation we know how to give. Write us about it.



JENKINS VULCAN SPRING COMPANY
1402 Chestnut St., St. Louis, Mo.
708 Commerce St. Fort Worth, Tex.
29 Caldwell St Sumter, S. C.

VULCAN QUALITY

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$4 BUYS THIS COMPLETE FORD HEADLIGHT CONTROL SYSTEM



$4 will now equip your Ford with a headlight control system that is as complete as any on high-priced cars and even more convenient—

The kind of light you **need**—DIM for city driving—NORMAL for ordinary use, or—INTENSE for picking your way along strange, rough roads at low speed, is INSTANTLY available the instant you FLIP THE CONTROL SWITCH of the



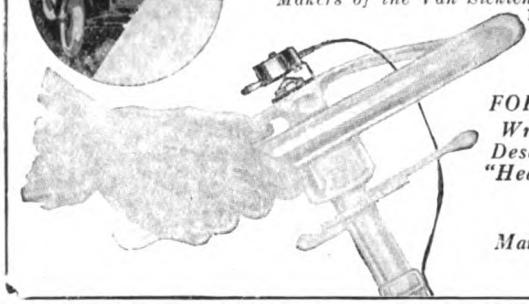
VAN SICKLEN
COMBINATION
HEADLIGHT DIMMER AND INTENSIFIER
FOR FORD CARS



Thousands of Ford Owners and Drivers want and need this Device. Order and install yours NOW!

Price $4 at your Dealer's or Shipped Prepaid with Complete Instructions, upon receipt of the price.

THE VAN SICKLEN COMPANY
Makers of the Van Sicklen Speedmeter
14 Chicago St.
ELGIN, ILL.

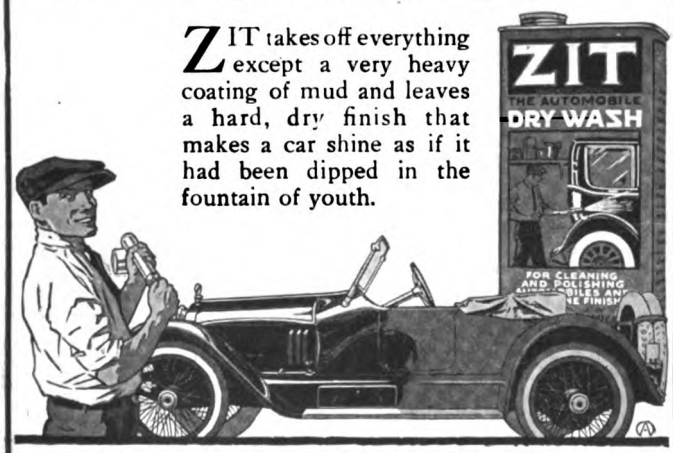


FORD OWNERS
Write Today for DescriptiveBooklet "Headlight Control"

Mailed FREE on Request

Clean Up on Sales of This Liquid Sunlight

ZIT takes off everything except a very heavy coating of mud and leaves a hard, dry finish that makes a car shine as if it had been dipped in the fountain of youth.



ZIT THE AUTOMOBILE DRY WASH

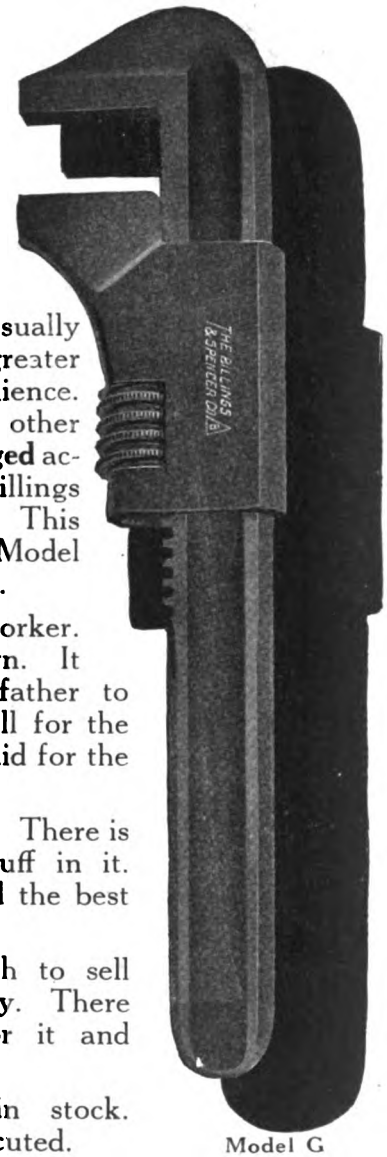
has made good wherever tried. It won't freeze, evaporate or burn. Restores the elasticity and keeps the finish from checking and cracking. Good for furniture as well as cars.

If you want a sure seller, stock ZIT. Dealers who have never tried it *should*. Write today for further information.

Westfield Chemical Company
50 Main Street, Westfield, Mass.

Here Is A Real Wrench

Made by men who use it. It's seen service—the Model G. On all sorts and sizes of machines, on automobiles large and small, on trucks, locomotives, practically wherever there is a nut to turn this wrench has proved its value.



Model G

It's a comfortable sort of wrench to own—the Model G. Its all around utility is unlimited. Made in sizes from 6 to 18 in., Model G can tackle practically any proposition. The jaw of this wrench is unusually thin which makes for greater utility and convenience. Unlike the jaws of other wrenches it is **dropforged** according to a special Billings & Spencer process. This fact alone places the "Model G" in a class by itself.

It outworks the worker. It can't be worn down. It is passed on from father to son and works as well for the new generation as it did for the old.

It's made that way. There is nothing but good stuff in it. The best of steel and the best of workmanship.

It's a good wrench to sell and a good one to buy. There is always a use for it and always a market.

Keep a supply in stock. Orders promptly executed.

Remember this: every wrench stamped with the Billings & Spencer triangle trademark is unconditionally guaranteed.

THE BILLINGS & SPENCER CO.
HARTFORD, CONN. U.S.A.

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ATTENTION DEALERS

Here is a money-maker for agents, garagemen, dealers in accessories. It's a sure business-getter because it means satisfied customers.

The automobile owner whose car is equipped with

KEYSTONE
SHOCK ABSORBERS

never has broken springs; knows what real road comfort is. Happy in the knowledge that wear-and-tear and upkeep cost are held to a minimum.

Made in five sizes to suit every type of car, from the lightest roadster to the heaviest bus, ambulance or hearse.

KEYSTONE SHOCK ABSORBERS are a "good buy" for any car owner for they mean good-by to racking vibration that ruins the car and the disposition of the owner.



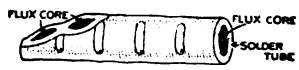
Hanger bolt, cross plate and lugs are drop forgings — not the ordinary castings. Keystone shock absorbers are the stoutest manufactured — they are unbreakable.

Finished in black enamel and nickel plated.

Dealers write us promptly.

Steel City Electric Co.
1207 Columbus Ave.
Pittsburgh, Pa.

SOLDER
(ready to use)



Kester Crystal-Core Solder

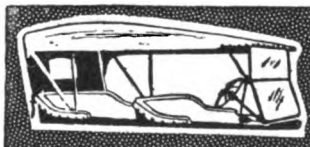
is a seamless tube of wire solder. The core is a soldering flux that flows as solder is used CRYSTAL-CORE is especially adapted for AUTOMOBILE work. Tube is a series of cells. Each cell is filled with the proper amount of flux. Kester Crystal-Core Wire Solder is cheaper to use than solid wire or bar solder. No time is lost in preparing or applying the flux or acid.

Cleaner, Neater, Quicker Results

Use it for battery terminals, gasoline pipe and tank joints, electric light connections, radiator leaks, cracked fenders, speedometer flexible shaft, spark plug terminals and general garage use. Sold in coils of 1 pound, and on spools of 1, 5 or 10 pounds.



Order Today From Your Jobber
Manufactured by
CHICAGO SOLDER CO.
218 N. Union Ave., Chicago



BIG MONEY IN THE AUTO TOP AND Seat Cover BUSINESS

Get into the biggest money making end of the automobile business—**replacing necessary equipment.** **Live, hustling, ambitious men wanted** as special factory representatives in exclusive territory to take orders and attach tops, top covers—seat covers. **No experience necessary. No capital required.** Working outfit furnished **free.** Make big money to start. **No competition. Copyrighted system saves buyer half the cost.** This is your chance to get into a big growing business. Tops always wearing out. Thousands to be replaced. More tops needed this year than ever before. Auto business growing bigger and faster than any other—you know that. Get into it **now**—while business is young. **Investigate.** Write at once for free catalog, samples and full details.

Note These Tops Without Frame
$5.65, $7.00, $8.50 up
Tops Complete
$13.50, $16.50 up
"One Man" Tops
$17.50, $19.90, $22.50 up
Radiator and Engine Covers Complete
$1.90, $2.40 and $4.65



NOTE THESE UNBEATABLE FACTORY PRICES

Write us about equipment for your car or for exclusive agency.

The Cincinnati Auto Specialty Co.
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CINCINNATI, OHIO

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The Sign of Service

The Leading Bearing Service Company of the United States

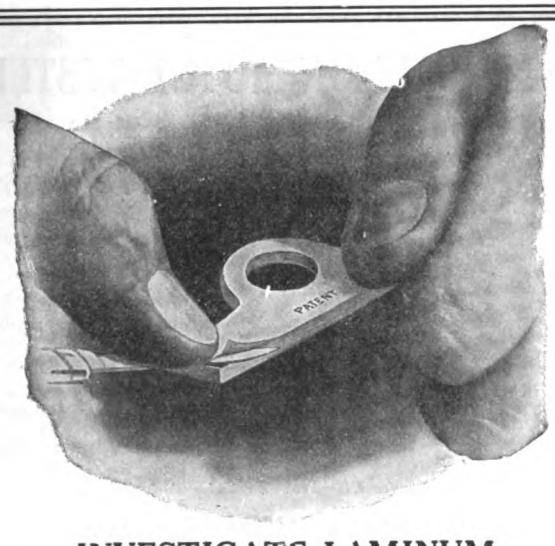
We not only have new bearings of all types, but we regrind worn bearings at a small charge and guarantee them equal to new.
Branches in all principal cities of the United States.
Complete stock of reground bearings for immediate exchange.
Special bearings made to your specifications.
We have a special bearing for Ford front wheels. No change need be made in construction. Change can be made in less than thirty minutes.

Write for Trojan No. 9

For quickest service see our nearest Branch.

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AHLBERG BEARING COMPANY
2636 Michigan Ave., Chicago, Illinois



INVESTIGATE LAMINUM

THE MULTI-PLY, ONE PIECE SHIM FOR SPLIT BEARINGS

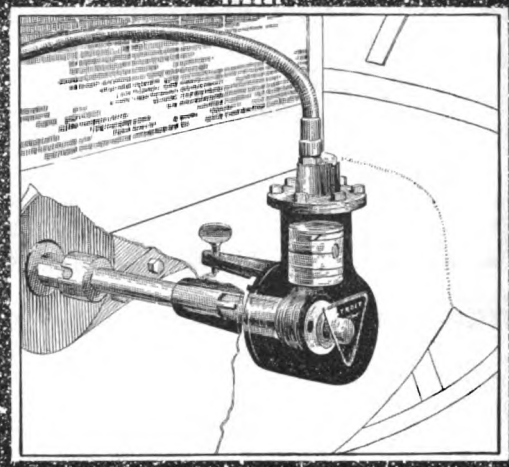
HANDY SIMPLE ACCURATE

Anything that will save time is worth looking into:

You will find it pays to use Laminated shims. They combine the good qualities of solid and loose leaf shims and have none of their troublesome features. Besides they are quicker, more accurate, and make a good tight bearing.
Laminum is made up of thin leaves of hard brass (either .002" or .003" thick) held together in a compact piece by a metallic binder. We furnish it in stock sheets, in various thicknesses. It can be stamped into desired shapes like sheet brass. We will stamp out bulk orders to suit your needs. Your jobber can furnish you with sizes and shapes generally in demand, such as shims to fit Ford engines. Write him at once.
Send for a sample.

LAMINATED SHIM COMPANY

New York, 533-541 Canal St.; Detroit, 2113 Dime Bank Bldg.; San Francisco, F. S. Peterson, 60 Pine St.; St. Louis, 1411 Chestnut St.



DETROIT GEARLESS CRANK-SHAFT TIRE PUMP

Pat. Aug. 24, 1915

Biggest Selling Season Is Just Ready To Open

If engineers of leading cars that sell between $800 and $1300 built their cars with special parts to accommodate the DETROIT Gearless Crank Shaft Tire Pump, what pump would **you** say is about to open its biggest selling season?

That's just what engineers have done for the DETROIT Gearless pump. Their customers demand a motor driven tire pump. In this obvious way they recommend the DETROIT Gearless because it is—

Not A Rubber Diaphragm Device

Owners of cars between $800 and $1300 don't have to push a hand pump—and they aren't going to do it when their cars are built for the DETROIT that costs only $10 complete.

960,000 Live Prospects

The DETROIT Gearless attaches in 30 seconds to the end of the motor crank shaft. Carries in the tool case. No tools or adjustments required.

Now ready for Briscoe, Dodge, Chandler, Hudson, Overland, Reo, Stearns, Saxon 1916, Studebaker—and YOU.

Liberal Discounts. Big Demand.
Write today.

DETROIT ACCESSORIES CORP'N.
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CANADIAN DISTRIBUTORS
Walkerville Hardware Co. Walkerville, Ont.

$10
Complete

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For the "One Woman" Top

DU PONT FABRIKOID

RAYNTITE

Single Texture Top Material

Rayntite is more than the ideal one-man top material. It is also ideal for the "one-woman" top.

All far-sighted automobile manufacturers recognize the growing importance of the woman in the choice of cars.

Witness the increase in the use of colored bodies, graceful designs, ornamental interiors of closed cars, and moorish finish Fabrikoid for upholstery.

A Rayntite top is light enough for the average woman to handle, yet guaranteed not to leak for one year, and built to last as long as the car.

Trade Authority Tells of Trend

From the show number of *The Automobile* of January 4, 1917, we clipped the following:

long in arriving.

Tops Are Lighter

Tops are tending to be lighter. The old-fashioned top consisted of two layers of material, each being thick and massive. Now there are many cars with only one thickness of material, just as waterproof, less attractive to dust, and a good third lighter.

Why make your car top heavy, and the "one-man" top a joke, by using material twice as heavy as it needs to be?

Now Made in Two Varieties

RAYNTITE No. 1—Single texture with Fabrikoid surface—and

RAYNTITE No. 2—Single texture with Fairfield Rubber surface

Each is guaranteed one year against leakage.

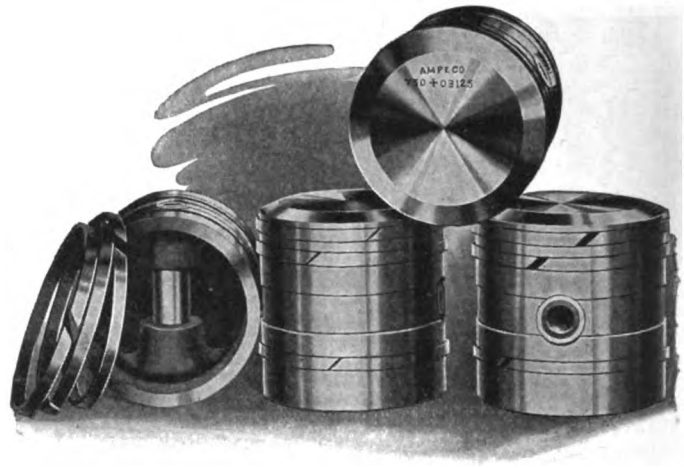
If the car you are considering is not topped with Rayntite, find out whether you or your wife can really handle the one-man top.



Samples of either variety on request

Du Pont Fabrikoid Company
Wilmington, Delaware
Works at Newburgh, N. Y., and Fairfield, Conn.
Canadian Sales Office and Factory, Toronto

"AMPECO" PRODUCTS



"AMPECO" pistons are **Light, Round** and **Mechanically Perfect** in all measurements. They are made of an exceptionally fine, gray iron that will not overheat. Try them.

We also make

AMPECO

Muffler Cut-outs
Wheelpullers—C. I. and Mall.
Ford Brake Shoes
Cam Shaft Bearings

American Machine Products Co.
Marshalltown, Iowa

The EDGERTON MOTOR TESTER

Positively Eliminates the Uncertainties of Guesswork in Locating Motor Troubles

It is a Tool that Sells on Sight because it

Locates instantly missing explosions
Weak cylinders
Knocking bearings
Leaking valves or pistons
Faulty valve or ignition timing
Makes carburetor adjustments easier
Diagnoses the exact working condition of each cylinder separately
Shows if motor is adjusted properly for running conditions
Burns carbon off the exhaust valve seats in a few minutes.
It is the greatest time and labor saving device of its kind

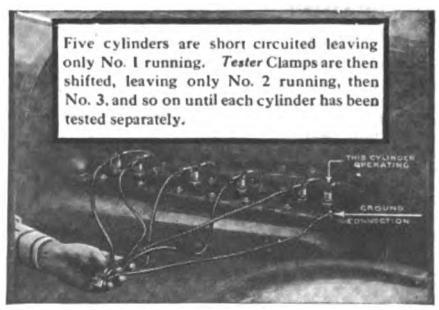
Made in two models for any number of cylinders; the twelve cylinder can be used for any motor of twelve cylinders or less and the same is true of the other sizes.

Everyone from the car owner to the expert factory adjuster needs it and should get it.

Write for Literature or Order Today.

R. G. EDGERTON & CO.

SUFFOLK, VIRGINIA



Patents Pending

PRICES

Special
4 cyl...$2.00
6 cyl... 2.50
8 cyl... 3.25
12 cyl... 4.75

De Luxe
4 or 6 cyl. ...$5.00
8 cyl... 6.75
12 cyl... 9.50

Specify number of cylinders and model desired when ordering. Both models give same results, but the De Luxe is made heavier and will stand more abuse.

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S-M-C

See the "S-M-C"

on each roll of

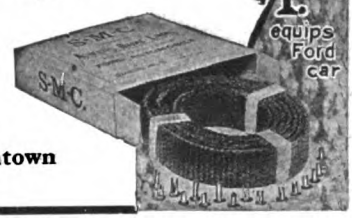
BRAKE LINING

before you buy. Always important, but doubly so now when rising costs of materials lead some to cut the quality.

S-M-C is still the same dependable brake lining—unaffected by heat, oil, water or gasoline. Will not crumble or glaze. Takes hold quietly but positively.

$1.50 FORD SET

—complete with three proper lengths for transmission and all rivets required. For sale by wide-awake dealers. If your dealer hasn't it, send his name and $1.50—we'll send it direct, postpaid.



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The "Modern" Factory

5536 Lena Street, Germantown
PHILADELPHIA, PA.



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Just write us today for Your Copy

THE BOOKLET TELLS:

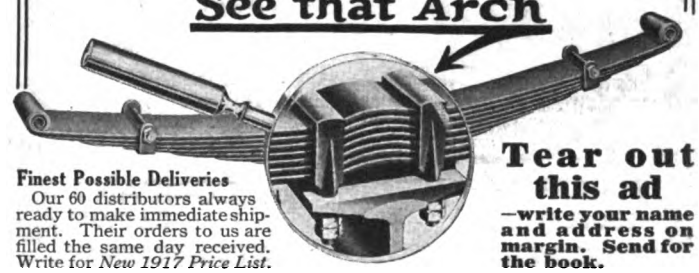
Why springs break—and why 75 out of every 100 break at the center—because of the weakening center nib or bolt.

How springs can be kept from breaking—and how Tuthill Titanics are used for more replacements than all other makes put together. They don't break! See that Arch! You get a guarantee forever against *center* breakage, and a guarantee against breakage at *any other point* for one year, in

TUTHILL Lubricated TITANIC SPRINGS

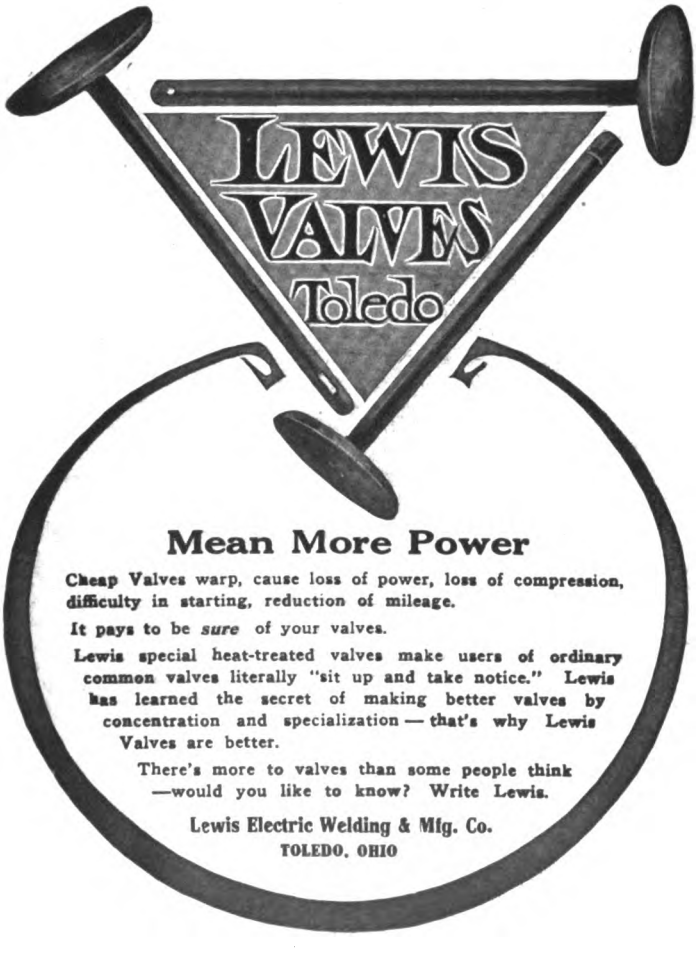
TUTHILL SPRING CO., 760 Polk St., Chicago

See that Arch



Finest Possible Deliveries
Our 60 distributors always ready to make immediate shipment. Their orders to us are filled the same day received. Write for *New 1917 Price List.*

Tear out this ad
—write your name and address on margin. Send for the book.



Mean More Power

Cheap Valves warp, cause loss of power, loss of compression, difficulty in starting, reduction of mileage.

It pays to be *sure* of your valves.

Lewis special heat-treated valves make users of ordinary common valves literally "sit up and take notice." Lewis has learned the secret of making better valves by concentration and specialization — that's why Lewis Valves are better.

There's more to valves than some people think —would you like to know? Write Lewis.

Lewis Electric Welding & Mfg. Co.
TOLEDO, OHIO

STEVENS & CO. NEW YORK



"HANDY" *Service Cabinet*

Keep small parts, bolts, screws, nuts, etc., just where you can put your hand on them. Dealers and garagemen find this little cabinet indispensable.

The cabinet is well built and finished. The front and sides are of varnished oak. The small drawers are 3" x 3" x 12", the larger drawers 6" x 3" x 12", with galvanized steel sides and bottom—dust and rust proof—cannot stick.

Handy Cabinets are interchangeable—may be built up into sections of any size, just like a sectional book case.

Dealer's Price $5.00
Order a sample through your jobber

Stevens & Company
375 Broadway *New York City*

MANUFACTURERS OF
Automobile Parts & Accessories

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Hook-On Boot



Tight – Sure

Motoring "helps" that really help. 'First-aid" that lasts.

Firestone

Accessories

They mean for dealers the satisfied trade which results from the right help at the right time. Send for details.

Firestone Tire and Rubber Co.
Akron, O. — Branches and Dealers Everywhere



Cementless Tube Patches



Away from the rank and file and emphatically in the class of cars of dominant character and presonality stands MARION-HANDLEY. Send for Catalog.

Model A-6-40, $1275; Model B-6-60, $1575; f.o.b. Jackson.

THE MUTUAL MOTORS COMPANY Jackson, Michigan
J. I. Handley, President

The Original Double Arm SHOCK ABSORBER W&C For FORD CARS

SAY W & C

when buying Shock Absorbers

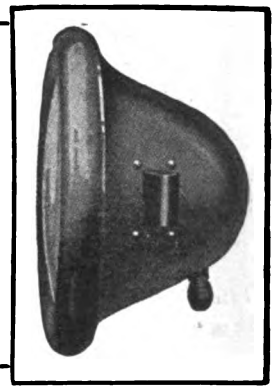
They insure the greatest riding comfort. The original double arm shock absorber.

PHILIP H. WEBBER & COMPANY
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Use Headlights That Identify Your Car

Distinctive types of electric headlights for all cars. Lights that identify your car. Built by the largest manufacturer of automobile lamps.

The John W. Brown Mfg. Co.
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"America's Greatest 'Light Six'"

HAYNES

America's Greatest 'Light Twelve'"

24th Successful Year

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is the industrial engineering and trade authority of the Automobile Industry—the oldest weekly journal in this field.

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National **Speedway Tires**

For quality, stamina, strength and general dependability, just test a NATIONAL *"Speedway"* against the tires you are now using.

National Rubber Co., Pottstown, Pa.



Vitristone made a big hit at the 8th Anniversary OF THE Red Head PLUG



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For Bushings

AMERICAN BRONZE COMPANY
BERWYN, PENNSYLVANIA
SOLE MANUFACTURERS OF NON-GRAN AND LARGEST EXCLUSIVE MANUFACTURERS OF BEARING BRONZE IN THE WORLD



Price Only $1 50

The UTILITY Universal Rim Wrench Fits Every Demountable Rim Nut

A complete socket wrench set in itself. Adjusts automatically. Can be used with both hands, like a bit and brace. Holds like a vise. Cannot slip off. Carries in the tool box when not in use. Price complete only $1.50. Write for free illustrated literature. Liberal dealers' offer.

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America's New Quality Truck

1½-Ton and 2½-Ton Models

Constructionally Superior in 24 Different Particulars
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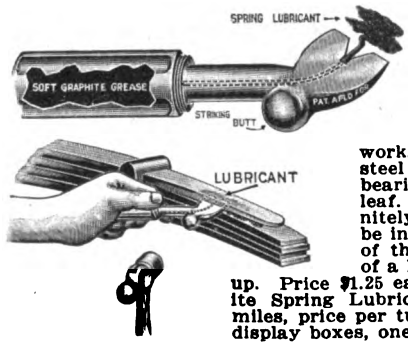


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Each Delion dealer gets *all* the Delion trade in a definitely-named territory. This holds good *permanently*. And he gets the profits he *should have* in tires. Investigate.

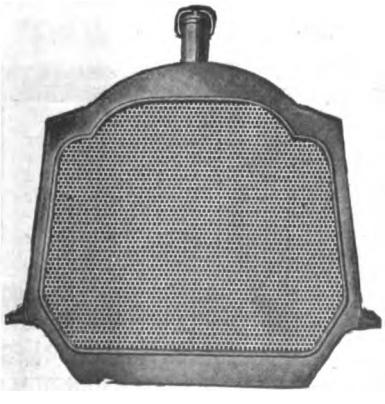
DELION TIRE & RUBBER CO., Inc.
Main Office: 1922 Broadway, New York
Chicago Office: 3449 Michigan Ave., Chicago

TOMAHAWK SPRING LUBRICATOR



Inject Graphite Lubricant between the leaves of the springs and get 100% easier riding from your car, without squeaks and danger of breaking springs. The Graphite works into the pores of the steel and makes a polished bearing between each spring leaf. It lubricates indefinitely. The Tomahawk can be inserted with the pressure of the fingers or a light tap of a hammer, if car is jacked up. Price $1.25 each. Tomahawk Graphite Spring Lubricant sufficient for 3,000 miles, price per tube $0.50, also packed in display boxes, one dozen each.

Charles W. Manzel Co., 310 Beard Ave., Buffalo, N. Y.



Fedders Radiators

Fedders quality is largely the result of 18 years' specializing in radiator production.

Fedders Manufacturing Co.
Buffalo New York



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A big portfolio, explaining how you can get into the most profitable branch of the accessory trade and outlining the help given dealers of

DETROIT BATTERIES

in accounting, securing customers and giving service, is free to all live dealers who will write

The Detroit Battery Co.
104 E. High St.
DETROIT

THE MOST USEFUL GARAGE TOOL

ever made. A product of necessity plus experience. Works on Universal Chuck principle. Handle turned clockwise contracts jaws, reverse expands them.



A THOUSAND USES CAN BE

found for this handiest of pullers. With its combination of 2 or 3 jaws and its capacity for rigid attachment, it is the most efficient tool of this sort on the market.

Collison's Universal Puller
(Patented)

Three 5½ in. jaws. Three 7½ in. jaws. Two 12 in. jaws. Capacity up to 17 inches. Satisfaction guaranteed or money refunded. 25 per cent discount to Dealers and Garagemen.

Removes wheels, jackshaft gear, Cardan joint, magneto coupling, magneto gear, wrist pin; straightens spring axles, frames, spindles. Price complete (with three sets of jaws), $20.

1300 Now in Use in New York and New England.

GEO. A. COLLISON **Burlington, Vermont**

Johns-Manville FIRE Extinguisher

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Always Ready!

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SAVES 15% ON AUTO INSURANCE



CHASE

DREDNAUT
Motor Topping

"Chase" Leatherwove, Mohair Velvet Upholstery, Plush Motor Robes, Wool Robes, Steamer Rugs, Wexford Motor Cloths for Tops and Slip Covers, Rubber Cloths for Tops and Curtains, Felt and Rubber Radiator Covers.

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BOSTON
NEW YORK DETROIT CHICAGO

"Eklips" The Spark Plug of Many Merits

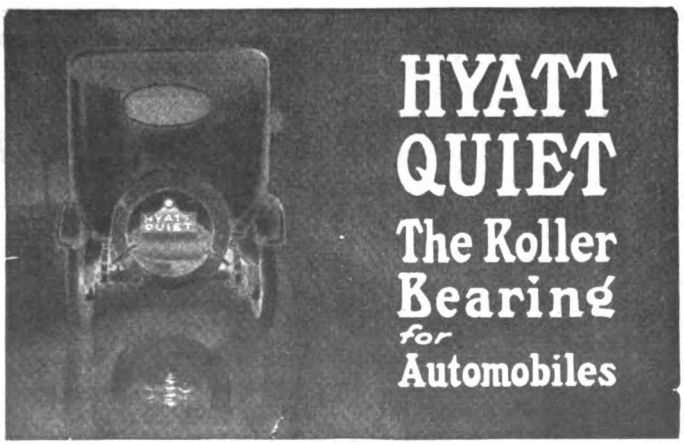
A MULTI-POINT plug of specially heavy construction. Soot-proof, leak-proof and oil-proof features. Gives a sure, hot spark. Finished carefully in all details which effect its appearance or service.

Made in different styles, sizes and threads to fit all cars.



The Fulton Company
721-723 National Ave.
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HYATT QUIET
The Roller Bearing for Automobiles

JUMBO SPARK PLUGS

Jumbo "MOLITE" $1.25

Guaranteed For The Life of The Car



Other types for Fords and other cars, $0.75 and $1.00. Ask your dealer or write direct to the manufacturers.

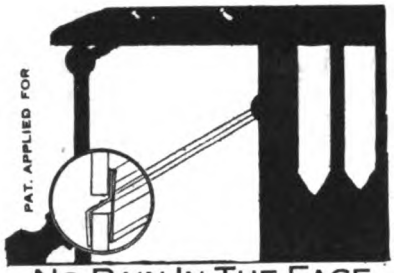
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GIBSON-HOLLISTER MFG. CO.
3380 WASHINGTON ST.
JAMAICA PLAIN, MASS.

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Transparent Weather Strip

Every dealer, no matter where he is located, will find a ready sale for this article because its merit instantly appeals to the motorist.



NO RAIN IN THE FACE.

It is made of transparent celluloid and furnished in 40 inch lengths so that it may be cut to fit any windshield. It is practically indestructible; fits snugly without fasteners; does not interfere with the vision; is Wind and Waterproof.

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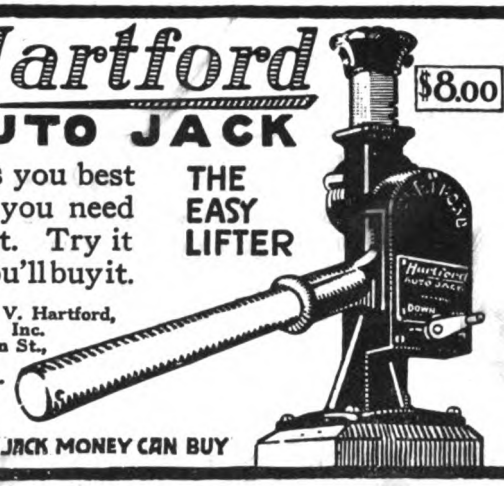
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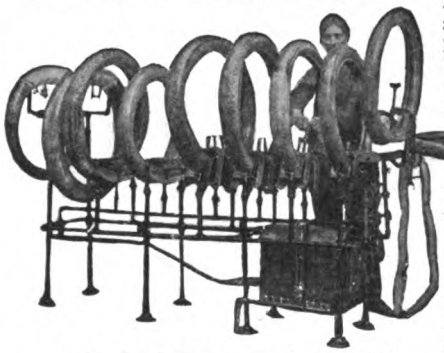
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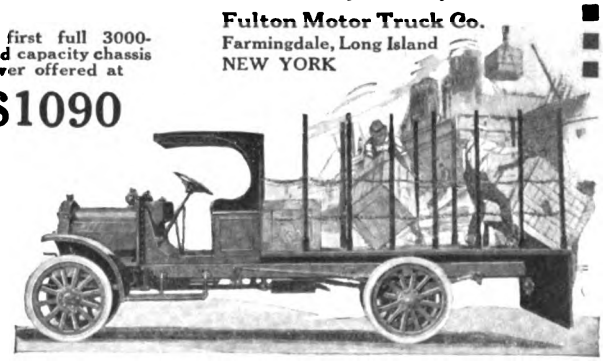
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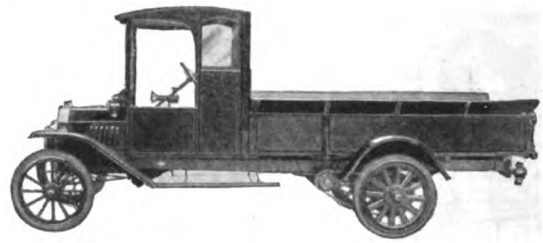
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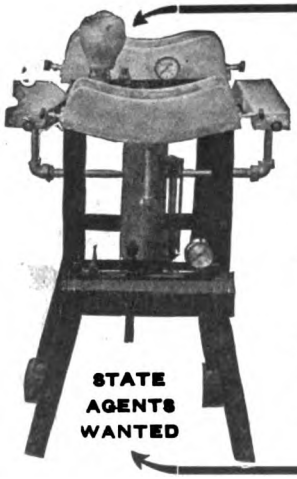


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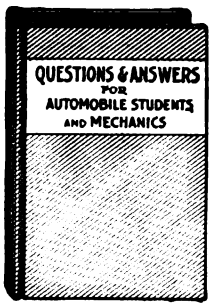
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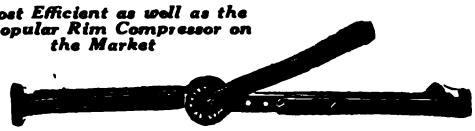
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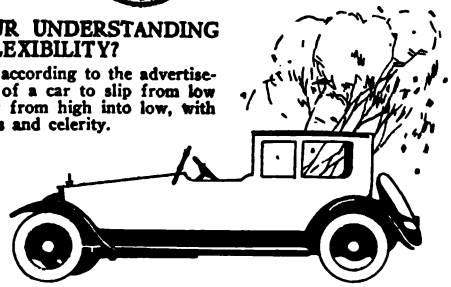
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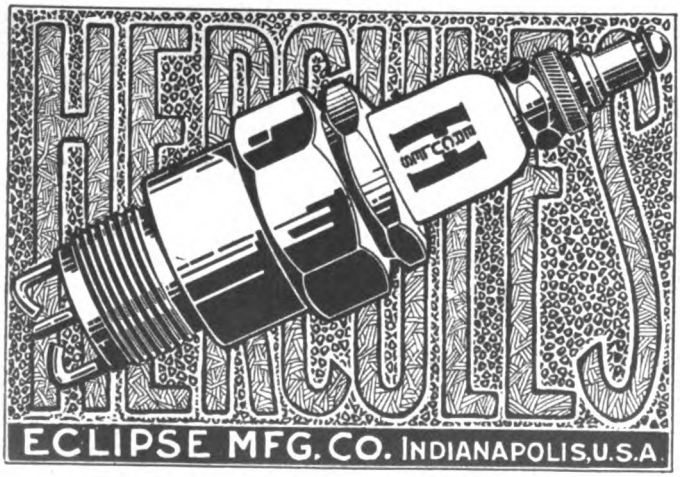
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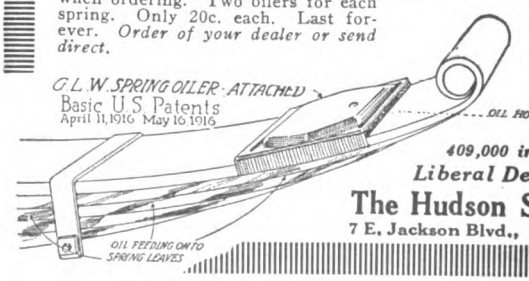


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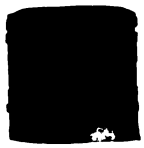
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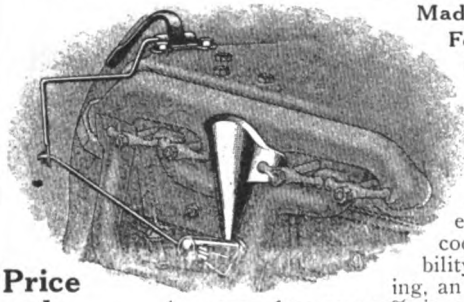
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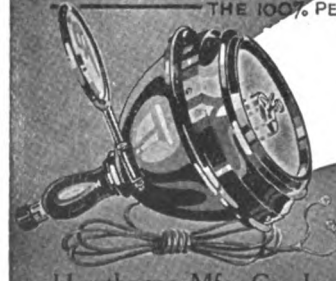
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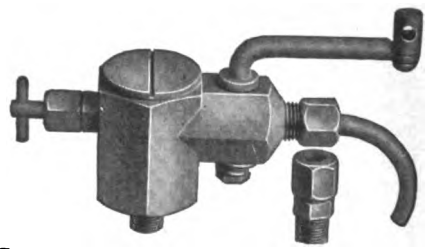
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37 by 4	18.25	3.75	8.70	1.85
34 by 4½	16.00	3.85	7.90	1.75
35 by 4½	16.50	3.90	7.90	1.80
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	lots of 50 $2.50	lots of 100	2.40
288	Quart cans Wondermist, per quart,	lots of 12	.76
600	Single Action Foot Pumps (Cox Brass Co.)	lots of 12	.75
	lots of 50 $.67	lots of 100	.63
200	12-oz. Ball Pien Hammers		.23
250	18-oz. Ball Pien Hammers		.27
200	28-oz. Ball Pien Hammers		.35
250	Mobilite Trouble Lamps, complete, with wire plug and switch		.50
75	Standard Tool Boxes, Ford 22 inch		1.15
220	Sets of Gas Head Lamps, Oil side and tail, made by Cochrane Victor Co., per set of 5		6.00
700	Champion ⅞ in. Spark Plugs, 100 to a box		.25
600	Miller Metric Spark Plugs, 1 to a box		.12
900	Boxes Red Rubber moulded cementless patches, 10 to a box, per box		.10
500	Cast Pliers, per doz., $1.10; per 100		8.50
300	Schrader Tire Gauges, each		.75
200	Moeller Battery Hydrometers, each		.45
80	Johns-Manville Fire Extinguishers, each		5.50
150	Cans Lubro Radiator Cement, each		.25
60	Cans U. S. Metal Polish, quarts		.15
25	Cases Puritan Soap, per lb		.09
500	Assorted Brass Pet Cocks		.12
60	Cans Tire Doh, per doz		3.60
72	Cans Rex Anti Slip Brake Wafers, per doz.		2.40
200	Sight Feed Oilers for Dash Board, per doz.		6.00
75	54-in. x 72-in. Glengary Robes, each		5.50
200	Flexible Metal Hose Connection, 18 inches long, per doz		.60
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30x3½	12.75	8.75	2.10
32x3½	14.70	9.80	2.25
34x3½	16.40	10.95	2.45
31x4	19.75	13.00	2.90
32x4	20.10	13.25	3.05
33x4	20.95	13.75	3.20
34x4	21.35	14.15	3.30
35x4	22.20	14.85	3.40
36x4	22.55	15.20	3.50
34x4½	28.60	18.50	3.75
35x4½	29.70	19.50	3.80
36x4½	30.10	20.00	3.90
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31 x 4	11.45	12.60	2.95
32 x 4	11.95	12.95	3.05
33 x 4	12.45	13.50	3.10
34 x 4	12.95	13.95	3.20
35 x 4	13.45	14.95	3.30
36 x 4	13.95	15.50	3.35
34 x 4½	16.95	18.95	4.00
35 x 4½	17.45	19.45	4.10
36 x 4½	17.95	19.95	4.15
37 x 4½	18.45	20.45	4.25
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30x3	6.50	2.00	35x4	14.00	3.45
30x3½	8.50	2.25	36x4	14.50	3.50
31x3½	9.00	2.50	34x4½	16.75	4.00
32x3½	9.50	2.50	35x4½	17.50	4.15
34x3½	10.00	2.55	36x4½	18.00	4.25
30x3½	11.25	2.75	37x4½	18.50	4.30
31x4	12.25	2.90	35x5	18.00	5.00
32x4	13.00	3.20	36x5	19.00	5.00
33x4	18.25	3.25	37x5	20.50	5.20

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32x3½	5.75	1.50	35x4½	8.75	1.80
34x3½	6.00	1.60	36x4½	10.00	1.85
31x4	6.75	1.65	37x4½	9.00	1.90
32x4	7.50	1.60	35x5	10.00	2.00
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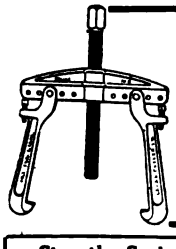
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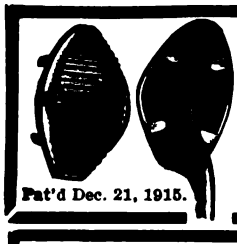
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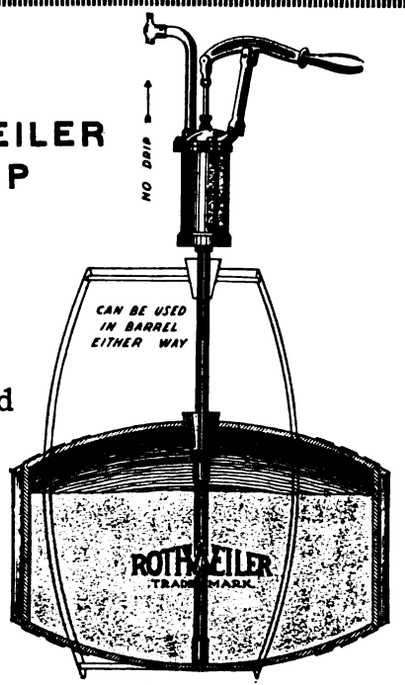
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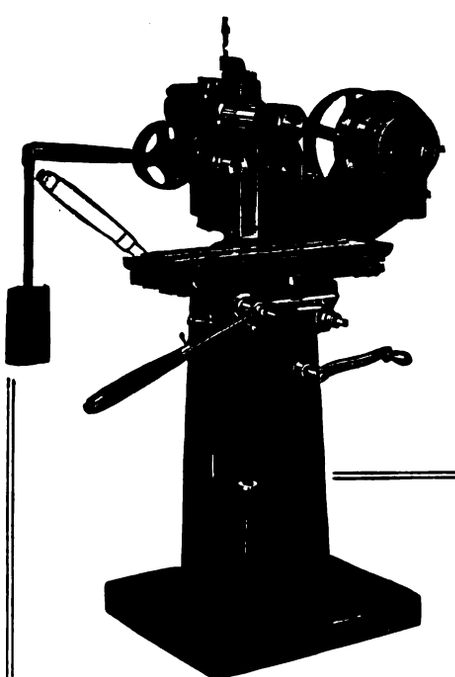
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Auto Specialties





You are going to hear a lot about this line, pushed by a growing and progressive organization.

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Manufacturing Chemists
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Cleans Refinishes
Polishes & Preserves the Body of Your Car from Bumper to Tail Lamp

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AN AUTO-BODY POLISH FOR EVERYBODY'S AUTO

The attractive MIRROLIKE Counter Display

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Grip like a mudhook

Ride like a bare tire

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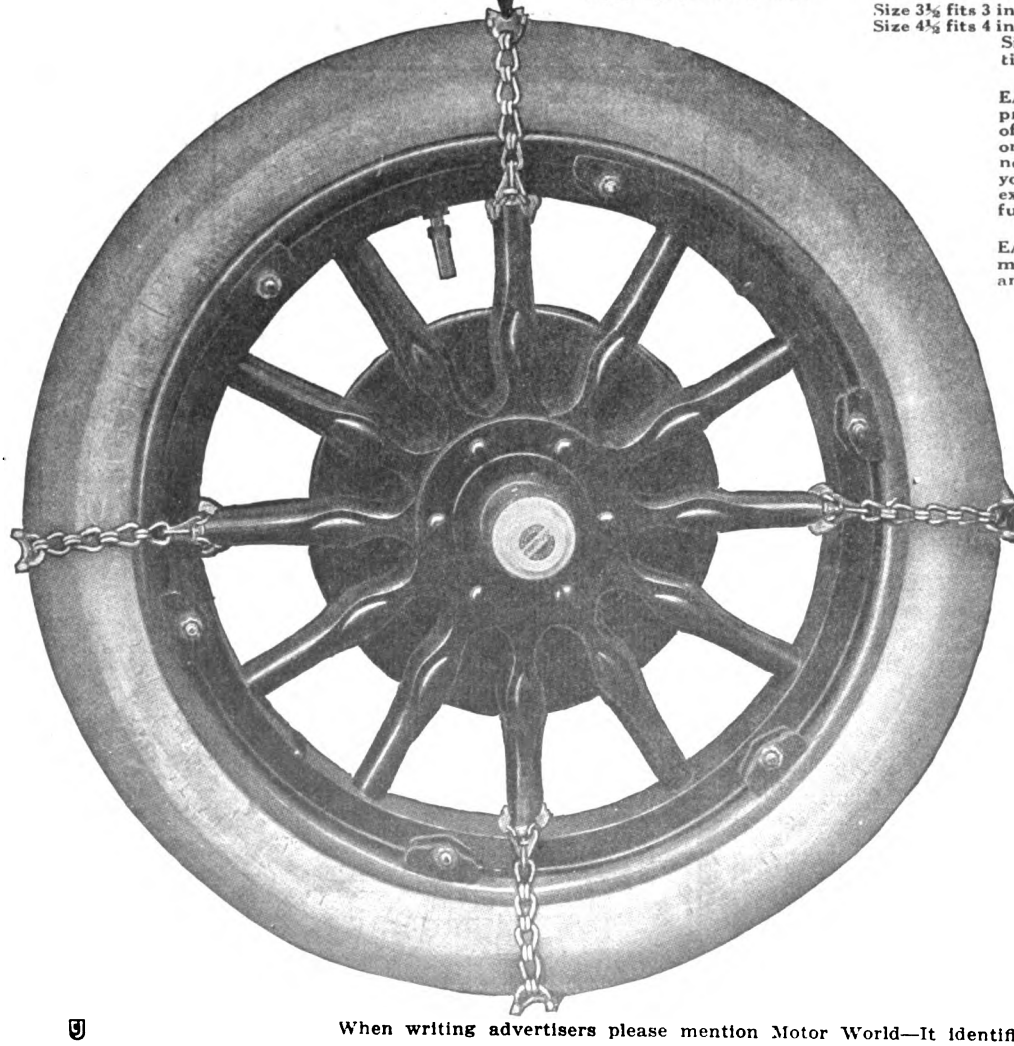
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EASYON CHAINS are also made for solid tires both single and dual.



Woodworth Manufacturing Corporation
Niagara Falls, N. Y.

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Help KEEP them on the Road by Using

MOSSBERG WRENCHES

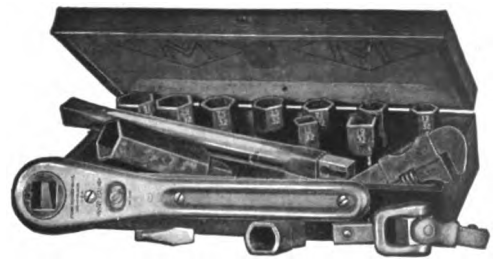
And Special Tools for FORDS



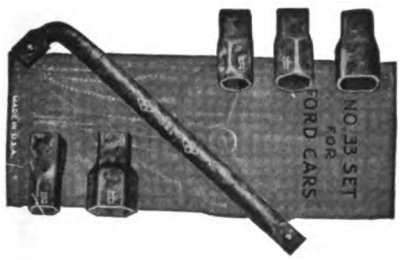
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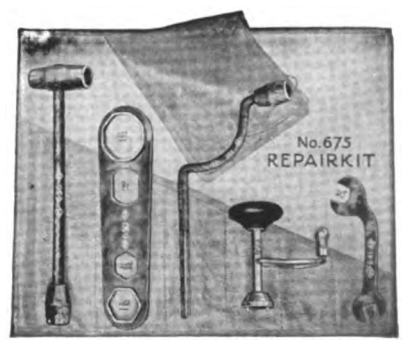
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FOR TRAIL OR PAVEMENT

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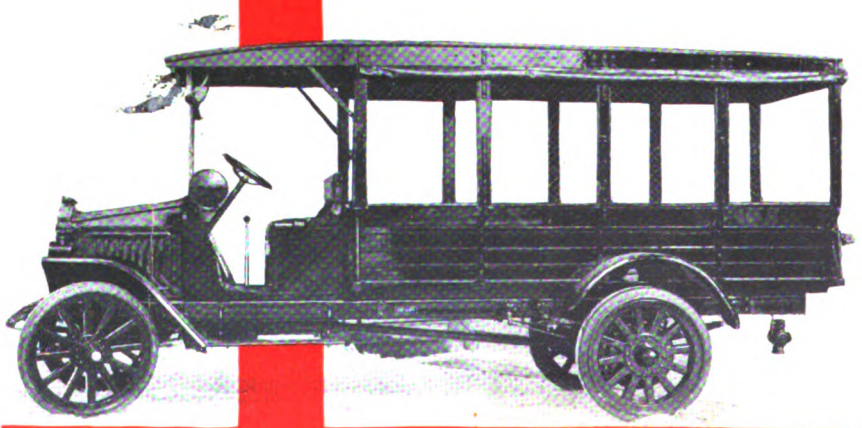
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Denby Motor Truck Company

Dept. F **Detroit, Michigan**



Four Models—
1 to 2½ tons in rating

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for
DEALERS, JOBBERS AND GA

Volume I
No. 11

New York, March 14, 191

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USA



$6

Stewart
Motor Driven
Warning Signals



$1

Stewart V-Ray
Spark Plug



$10

Stewart
Vacuum System

There is Money in Accessories

Put your accessory business on a big paying basis. You can easily do it. Make your accessory department the most profitable by handling only standard accessories of known value, accessories that virtually sell themselves.

Stock up with Stewart Products. They are best known, most advertised and easiest to sell.

As a Stewart dealer, you tie to Stewart success and Stewart advertising—both the biggest in the accessory field. You get added prestige and an accessory business that's decidedly worth while.

And remember, Stewart Products make the hardest competition.

Take the Stewart Tire Pump for instance. It is standard equipment on many of the best cars. It is the one tire pump recognized by the motor car industry. Consequently, it is the easiest to sell—and hardest to compete with.

The same is true of the Stewart Warning Signals, Stewart Vacuum System, Stewart Speedometer, V-Ray Spark Plug—and all other Stewart Products, including the famous combination Stewart Speedometer and Instrument Board for Fords, selling for $11.25.

Don't waste your time, money and efforts trying to sell unknown, unadvertised accessories.

"It will pay you to see that every car is Stewart equipped."



$25

Stewart
Speedometer



12

**Stewart-Warner
Speedometer Corporation
Chicago, U. S. A.**



Warner
Auto-Meter

$50

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Here's another of the States that recognizes Studebaker Value

Rhode Island

gives to Studebaker dealers 135.9% increase in 1916 sales over 1915.

More than doubled the sales over the entire state—that's what Studebaker Value did in Rhode Island.

Here's proof that it pays to be a Studebaker dealer, no matter where you are.

For this 135.9% increase was produced by Rhode Island as a whole, not in a specially picked territory or by a particularly fortunate dealer.

The reason for it lies in Studebaker VALUE.

A value so apparent that prospects almost sell themselves.

No matter what your territory—no matter what the buying attitude of your prospects may be, it is safe to say that you can make good with Studebaker as did Rhode Island dealers because of Studebaker VALUE.

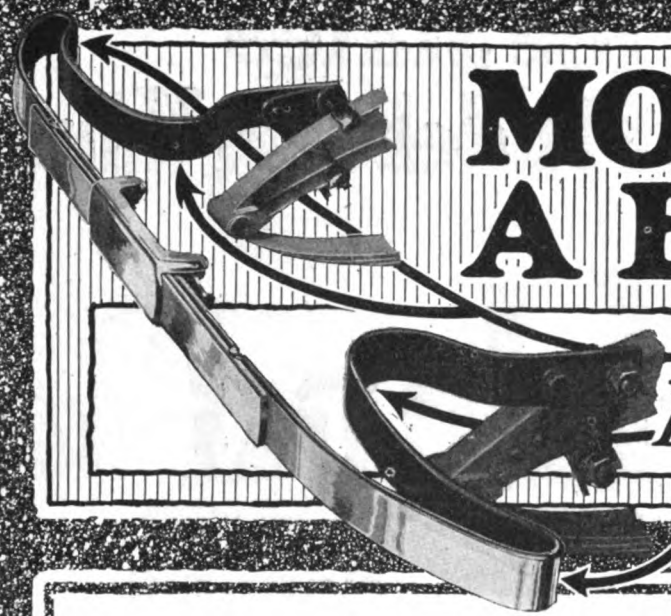
STUDEBAKER

South Bend, Ind. Detroit, Mich. Walkerville, Ont.

Address all correspondence to Detroit

It pays to be a Studebaker dealer

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MORE THAN A BUMPER

These Powerful Double-Loops Smother the Blow

CAR protection is necessary in these days of congested motor traffic. The

Hartford BUMP ABSORBER
—more than a Bumper

furnishes it in a full measure.

All that the ordinary "bumper" can do, it does—**and more.**

It not only wards off the physical contact of the colliding body from lamps, fenders and radiator, but also **smothers the shock** of the ordinary collisions, and most of the extraordinary ones. That means—no expensive repairs; no damage or strain to the car; no disagreeable effect upon the occupants. Powerful double-loops of spring-steel effectively absorb and deaden the blow to a marked degree.



Adds to the style of any car

Moreover, the touch of beauty a Hartford Bump Absorber gives to any car is no small consideration.

Bolts on without drilling and stays bolted.

THREE MODELS

Large Car Type (three leaf)	**$12**
Medium Car Type (two leaf)	**$10**
Ford Car Type	**$8**

Standard finish, black enamel with nickel center clamp. Nickel finish $1 additional.

Brackets available for attachment to cars with splash pans without cutting pans or drilling frames.



Hartford Shock Absorber
Makes Every Road a Boulevard

EDWARD V. HARTFORD, Inc.

Heretofore known as

Hartford Suspension Co., 142 Morgan Street, Jersey City, N. J.

Makers of the Hartford Shock Absorber, E. V. Hartford Electric Brake, Hartford Auto Jack, Hartford Bump Absorber

Branches: New York, 1846 Broadway, and Service Station, 1926 Broadway; Boston, 319-325 Columbus Avenue; Chicago, 2637 Michigan Avenue

Distributors in principal cities. Dealers everywhere.



Hartford Auto Jack
The Best Jack Money Can Buy

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY

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Horace M. Swetland, President
W. I. Ralph, Vice-President E. M. Corey, Treasurer
A. B. Swetland, General Manager

Business Department
CHARLES B. SHANKS, Manager

Editorial Department
David Beecroft, Managing Editor
S. P. McMinn Ray. W. Sherman
H. F. Blanchard S. T. Williams

Branch Offices
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6060
Detroit—95 Fort Street, West, Phone Main 1351
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"NORMA"
BALL BEARINGS
(Patented)

Dependability—isn't that the really essential quality in any car? Isn't dependability—so far as car performance is concerned — synonymous with pleasure-capacity and service-capacity? And doesn't dependability in the car as a whole demand dependability in every detail of construction and equipment? The ignition apparatus and lighting generator, for instance?

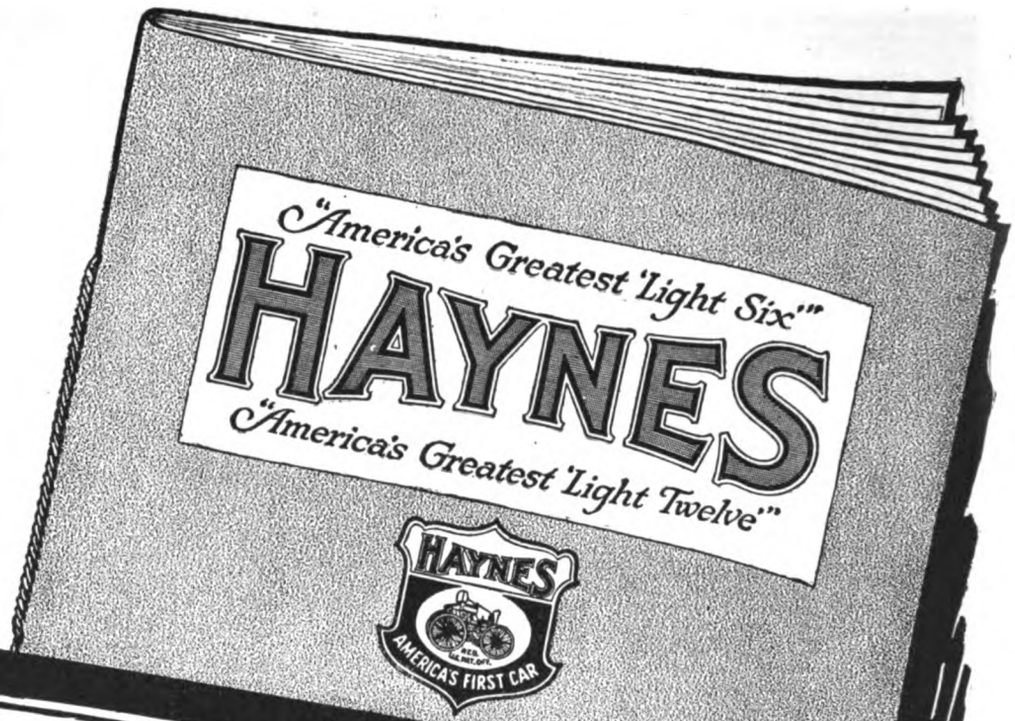
"NORMA" Bearings are the standard bearings in the high-grade magnetos and lighting generators used on cars of the better class, and adopted because of their proved dependability. It is, then, a mere statement of fact to say that "NORMA" Bearings identify dependable magnetos and lighting generators.

Be *Sure*—See That Your Electrical Accessories Are "NORMA" Equipped

THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK
Ball, Roller, Thrust, Combination Bearings

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Says a prominent dealer: "Every day I receive rafts of printed matter. But when this book came it interested me so intensely that right then and there, in the midst of a busy day, I took a half-hour off and read it. And it was time well spent."



Just 473 copies of this "most remarkable book" are left!—



First 473 coupons get the remaining copies. *Free to automobile dealers only.* Price to others $1.00 *in advance.*

—Read A. G. Seiberling's prophetic interview "*The Automobile Outlook for 1917.*"

—Read D. L. Watson's tremendously interesting article on Haynes cars "*The Finished Product of a Quarter Century of Good Car Building.*"

—Read H. R. Perry's summary of the reasons why over 10,000,000 Haynes ads a month are appearing and how Haynes is supplying its dealers with the livest kind of local advertising helps, in "*Good Advertising and Powerful Advertising—Don't You Think?*"

—Read what R. T. Gray has to say about "*Haynes Backing its Dealers by Powerful Advertising.*"

—SEE 24 full-sized reproductions of the big, beautiful, convincing Haynes ads which are appearing regularly in 50 of America's most popular national magazines, automobile and farm papers, besides hundreds of newspapers.

100% greater output for 1917. New territories being opened. Haynes "Light Six" $1595 — "Light Twelve" $2095. Send the Coupon NOW!

THE HAYNES AUTOMOBILE COMPANY
70 South Main Street
Kokomo - Indiana

FREE—to Automobile Dealers ONLY
—to others price $1.00 in advance

The
Haynes Automobile Co.
70 South Main St., Kokomo, Ind.
Mail me a copy of your 24-page book.
I now sell the following cars:.....
.....
.....
Firm Name.....
City..... State.....
Personal Signature.....

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. L New York, U. S. A., Wednesday, March 14, 1917 No. 11

Purpose

SOMETIMES when we cease our daily task for a moment to look about us at men who are successful beyond doubt we commence to wonder what it is that has brought success to these men.

They are not brilliant, scintillating men. How disappointed we are to find that they are mere commonplace individuals. We expect, perhaps to see the master mind reflected in their actions, in their words. Instead we see only careful, plodding, slow-thinking men.

We are apt to forget that their success has not been won in a night or in seven nights; that it has taken years for them to reach the pinnacles from which they can look down on the world.

The one thing that has brought success to these men is purpose. These men have a purpose in life. *They have an object*, something to strive for, something to shoot at.

They may appear to be drifting aimlessly along with the tide. But they are swimming with steady, strong strokes that bring them toward their object. Purpose drives them on.

SUCCESS demands a purpose. A purpose, steadily pursued, will bring success, always assuming, of course, that the purpose is a worthy one.

Suppose we all start the spring of 1917 with a purpose. Suppose we say: "We will put by a little money in the bank every week." Suppose we stick to that decision, no matter what sacrifices it may mean; no matter whether we have to cut out the movies or our favorite brand of fine cut.

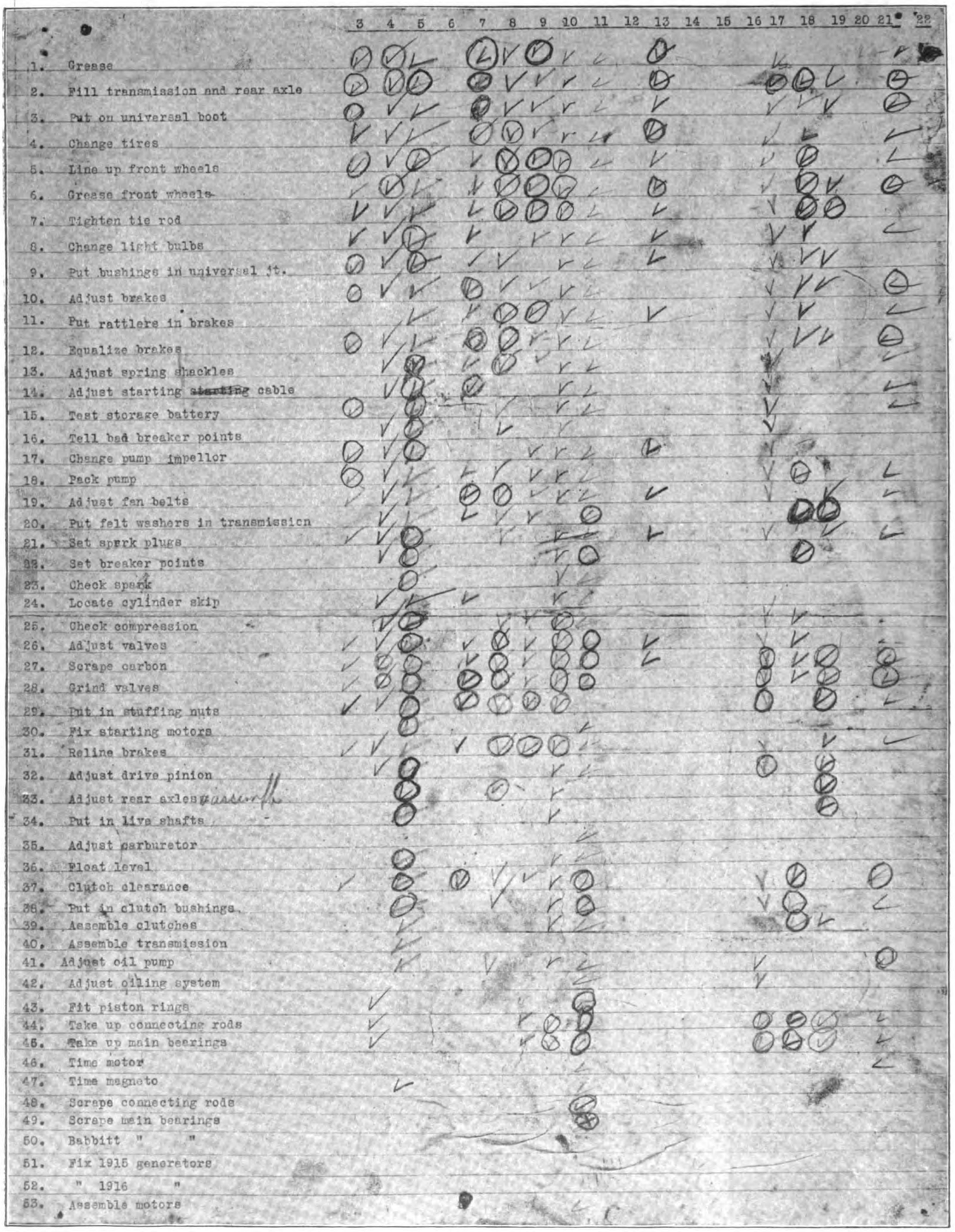
It was just this kind of purpose that made the fortunes of Rockefeller, Carnegie, Morgan, Schwab. These men all started with nothing—but a purpose.

Their purpose led them on like a bright shining light.

Let's all have a real purpose in 1917.

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This Chart Illustrates the Story on the Opposite Page



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What Mechanics Don't Know and What They Do

This Is a Story for Busy Superintendents It Is About a System for Controlling Mechanics

By Stanley P. McMinn

A CHART that shows his mechanics what they *don't* know, and shows the boss what they *do* know, is the rock on which the service department of Russell P. Taber, Hartford, Conn., is built. Taber sells Reos, and what is more to the point he takes care of them properly. His service manager, F. C. Standish, is the father of the chart idea.

The chart is shown on the opposite page. Take a good look at it. Along the top line are a number of figures. These are the numbers of the 22 mechanics in the shop. No. 1 might be John Jones, No. 2 Henry Smith, etc. Each mechanic has a number.

Down the side of the chart are the 53 jobs into which Standish has divided the service work.

One Job a Week

There is one job for every week in the year and one over. Notice that these jobs are put down in the order of their importance. First comes "Grease"—most anyone can do that, but it must be done right. Then comes "Fill transmission and rear axle," which is just a shade more difficult; then "Put on universal boot," which is a little more difficult, and so on through the whole chassis.

Here is the key to the whole matter. When a green hand is taken into the shop—and by green Standish means a man who has never worked on a Reo car, regardless of what other cars he may have worked on, or how good he may be in other work—he is first put to work greasing. He must become proficient in that before he can tackle anything else.

When the man comes in he is taken in hand by an experienced Reo repairman and instructed. When he thinks he has mastered the details of greasing a car properly he is permitted to put a check in the "Grease" column on the chart under his number.

As soon as Standish sees the check he arranges to supervise this man's greasing work to see that he really has mastered it and can go ahead in the future and do it properly without supervision. If the examination proves satisfactory, Standish places a ring around the check, *thus signifying that this man is qualified to do this particular job.*

One Week to Learn

But the mechanic still has a long way to go before he can be called a qualified Reo repairman. So Standish puts him on another job. This time he is set to filling the transmission and rear axle and the same procedure is gone through.

Generally a man is kept on one job for a week. He can master that job in that time if he is any good at all; *and if he can't, Standish doesn't want him.*

But he may master a job in less time than a week, and if he can do so Standish is glad to let him make a trial at it.

Every new hand that is put on works under an experienced man who acts as his teacher. Thus John Jones may have learned how to grease a car; a big rush comes in the shop and he is put to helping an experienced man adjust the clutch clearance. Having obtained a certain degree of proficiency in this, he is asked to help on another job of the same kind, perhaps several more.

After a certain length of time he feels that he can do the work alone and he places a check opposite this job under his number. Then Standish supervises his work, and if satisfactory a ring goes around the check.

Then Standish knows that this man is qualified to do that particular job in the proper manner, and next time that job comes in he has only to look on his chart, ascertain which of his men can do the work, takes the one that is not on some other job and gives him the work. He knows it will be done properly.

What Men Don't Know

But perhaps the most valuable feature of the chart is that it *puts right in front of every workman exactly what he does not know about repairing and adjusting a Reo car.*

Imagine a mechanic thinking he is pretty good and perhaps wanting a raise. He looks at the chart, finds that after all he does not know half as much as the next man. It is an incentive to the men to know more, to become proficient in all the jobs.

Standish points out, however, that it may be desirable to keep one man almost exclusively on one job. It is possible to make this man so good on that job that he is worth more to the shop than a man who knows how to do a lot of jobs.

Knowing how to do the job means a lot more than merely doing it right. It means that the job must be tackled in an efficient manner. Here's a case in point:

He Walked Three Blocks

One workman checked No. 4. Standish supervised the work and found the man walked twenty-four times around the chassis to get tools, etc. The chassis is 14 ft. long. *This man walked nearly three city blocks after tools.* He got no ring around his check until he learned to take all his tools on the job with him and work instead of walking. This means efficiency.

Doing a job right means that it must be done in a certain minimum time. Standish has another chart which shows exactly how long it takes each workman to do each job. It is shown here.

The time it takes each man is entered under his number opposite the job. Thus,

IMPORTANT NOTICE

All employees are requested to go over this list very carefully and check each and every job that he feels he is entirely competent to do alone. Each employee will be called upon to demonstrate his ability to do the work called for under the number he checks.

Detailed assistance and demonstration will be given to any employee on any or all numbers he needs before checking up this list. When the list is checked, he will be supposed to perform the labor unassisted and will be held responsible for that particular job leaving the service station in A 1 condition.

Records will be kept of errors made along the same lines, and you can easily see that the management cannot possible desire the services of a man falling down too many times on the same job.

Please do not misunderstand this chart. It is put to you in becoming a better mechanic and with the idea of making you of more value to yourself and the business.

This notice hangs next to the chart on the opposite page and explains its operation.

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This Chart Shows Job Times for Different Mechanics

	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Grease													
2. Fill transmission and rear axle													
3. Put on universal boot													
4. Change tires													
5. Line up front wheels													
6. Grease front wheels													
7. Tighten tie rod													
8. Change light bulbs													
9. Put bushings in universal jt.													
10. Adjust brakes							½¾½¾						
11. Put rattlers in brakes													
12. Equalize brakes													
13. Adjust spring shackles													
14. Adjust starting cable													
fast st... battery													

The figures at the side are the various jobs done in the shop. The figures at the top are the numbers of the mechanics. The entry shows that mechanic No. 9 adjusted brakes in these various times. When the chart is completely filled it gives a valuable record of the ability of the various mechanics in the shop and also serves as a ready reference in estimating jobs

for example, No. 9 has adjusted brakes in the following times: ½, ¾, ½, ¾ hr. Therefore ¾-hr. seems to be the average time required for this job. If a man takes longer Standish wants to know why.

Incidentally, this chart makes it possible to estimate jobs very closely.

Standish gets his men together regularly and talks to them. He tells them wherein they are failing or succeeding; points out new ways of saving time, of cutting out useless operations—in short of efficiencyizing themselves and their shop.

One of the principal reasons Standish developed his chart system was to eliminate the need for supervision. Supervision is non-productive labor. Supervisors cost money for producing nothing. If no supervision were necessary, supervisors might be done away with. Standish is working toward that end. He hopes some day to have his shop so organized that he can devote all his time to planning, thinking, conserving his energies for bigger things.

Another innovation of Taber's is the use of the Sheldon course in salesmanship. Practically every member of the organization is studying the course. This applies even to some of the mechanics in the shop.

Taber states that already he has noticed that the course is having a valuable effect on his men. One salesman who before was only mediocre now is up among the topnotchers. In a recent sales contest he finished way up among the leaders.

In the shop the course is teaching the men to think for themselves, to rely upon themselves. Taber himself conducts the meetings, and at regular intervals a lecturer talks to the men.

Walla Walla Dealer Builds Demonstrating Hill at Front Door



Motoring in the hill country is all very nice, but it takes time from business. The Motor Sales Co. was so rushed during the Walla Walla harvest festival that it had to build the scenery right at the office door



No, this is not the White House steps, but a side view of the made to order hill in Walla Walla with a Dodge car on the incline. Those bicycle riders watching the stunt ought to be good prospects

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Get Set

DO you know what a minute-man is? A minute-man is a man who is ready in a minute. But if he is not ready *that minute* the opportunity flies by so quickly it has no time to leave a visiting card.

In a minute Spring will be with us. Today, in New York, the sun is shining and the birds are twittering and some dealers and garagemen are beginning to think about being minute-men. But they'll get left; just as sure as shooting, they'll get left.

You can't be a minute-man today in the motor car business, or in any other business, for that matter. If you try it, the hour-man, or the week-man, and most likely the month-man will beat you to it.

The minute-man is the man who is one minute ahead of the times. The hour-, week-, month-men are the men who are an hour, a week or a month ahead. *They're the ones who will win.*

Are you a minute-man? *You ought to be ashamed to admit it.*

Boys, it can be done in a minute.

Success in the coming greatest of all summer merchandising seasons means planning, p-l-a-n-n-i-n-g, PLANNING.

Are you going to be ready?

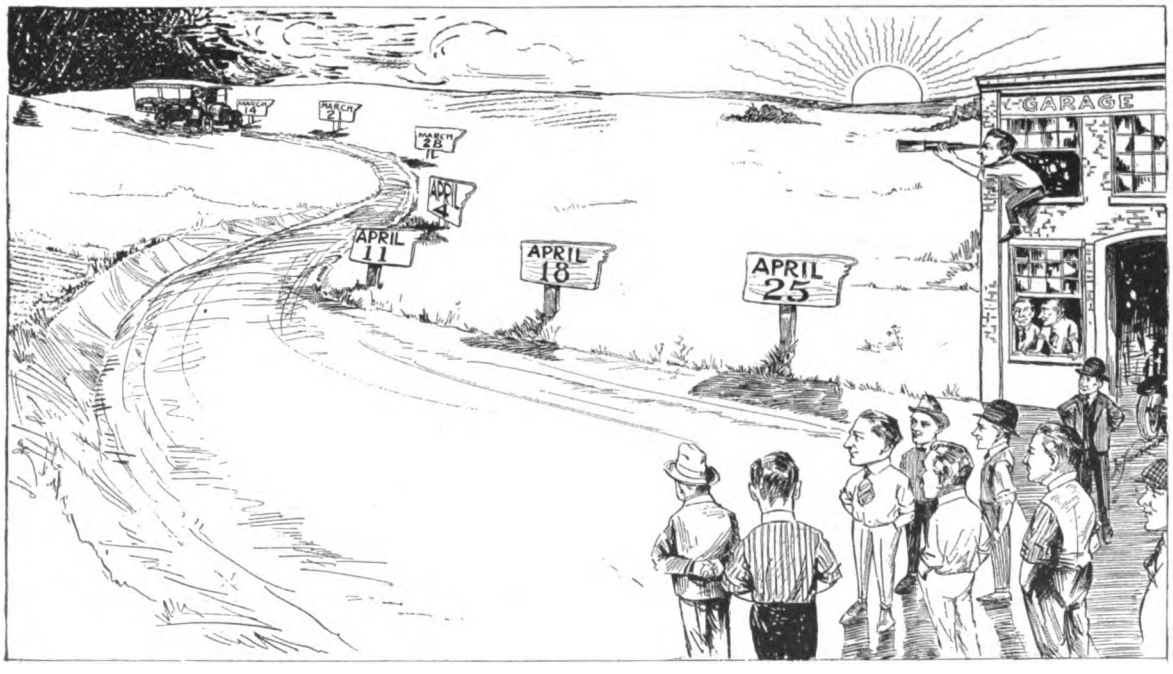
Have you got your plans laid NOW to get more than your share of that summer business. Or are you going to let the other fellow get his share *and some of yours, too.*

Get the jump on the other fellow.

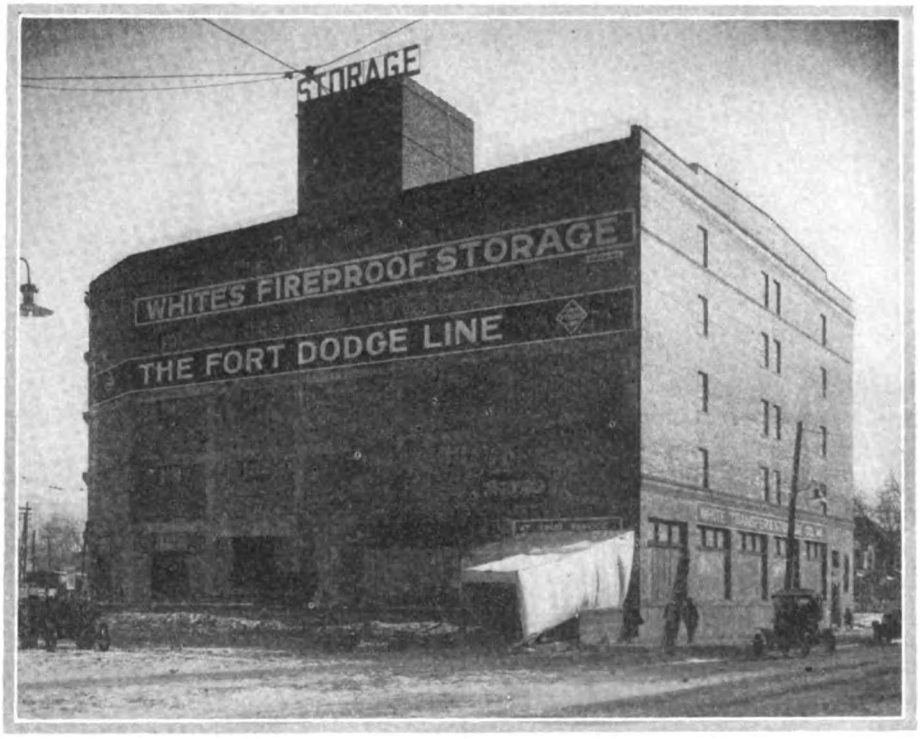
Don't be a minute-man. Be a month-man—or better still, a two-months man or *a three-months man.*

But don't be a minute-man. *The minute-men get left at the post.*

The great Summer Merchandising Number of MOTOR WORLD will be here April 25. Are you ready? Get Set.



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This is the building that houses Fort Dodge's show

Fort Dodge Mixes Vaudeville and Cars

Both Dealers and Buyers Like This Kind of Merchandising

BY S. T. WILLIAMS

FORT DODGE, IOWA, March 10—All Fort Dodge is automobile show this week, but the most of it is centralized in White's terminal warehouse. This is the sixth show held by the Fort Dodge Dealers' Association, and in spite of the bad weather at the first of the week, is the best show yet.

The show is on the first two floors, and in the basement of the new terminal warehouse, and occupies about 30,000 sq. ft. of floor space. In the basement is the truck and tractor show, cars on the first floor and cars and accessories on the second floor.

There are 90 cars, 13 trucks and 3 tractors in the show. Of these 41 are touring cars and 16 are chasses, as the people here buy the touring cars and want to see the chasses.

The general layout of the first and second floor is good, and follows the plan previously used. On the first floor the exhibit spaces are all around the outside of the room. In the center is a square orchestra stand, each side of which forms a back for another exhibit space. This leaves a single aisle around the room, in which the people are kept circulating to the right and so see it all.

On the second floor the arrangement is the same, except that the accessory exhibits are in the center. There are 16 separate accessory exhibitors here, and by being grouped in a unit, form an important part of the show.

The decorations on the first floor were styled "Chinese," and those on the second floor floral. At any rate, they effectively removed the warehouse appearance of the building.

No hurdles or fences were used to mark off the individual exhibits. The dealers wanted an open show, and as the show here is more or less of a family affair, cut out the hurdles. The result is that one may go from one exhibit to the next without going into the aisle.

This makes a clean looking show, but also makes it difficult to tell where one exhibit leaves off and another begins.

Real Vaudeville Show

There is one feature of the show that is not good merchandising, and that is the special entertainment feature. Orchestras are generally considered a necessity, but the dealers here have gone far beyond that and introduced a regular vaudeville entertainment.

This doubtless draws a crowd, and holds them when it gets them there. No sales talk can compete with an imitation Charlie Chaplin, a Dutch comedian or a ladies quartette, when the prospect knows he can get a sales-talk any time, and the entertainment only once a year.

If it is impossible to get a crowd without an entertainment, get a smaller number of entertainers, advertise both the entertainment and the show more, and then rush the entertainment off in a bunch at fixed times twice a day. A $2,000 car sales talk does not harmonize with a bagpipe.

Outside of the entertainment feature, the show was exceptionally good, and well managed. Each exhibit was provided with a large chest that took all car covers, coats, hats and wraps, and permitted the exhibits to be clean.

A uniformed attendant was on duty in each exhibit, keeping the cars dusted, papers picked up and everything in order.

There are many sidelights on the show here, in fact, the whole town is show. At one movie house the Death Valley Dodge is being shown. At another the Hudson, on its trans-continental run, is shown, and the Ford and Overland factory reels are at other moving picture houses.

Nearly every salesroom is showing special models that could not be placed in the show exhibit. Studebaker is not in the show at all, and has the gold chassis at its salesrooms.

Tremain & Rankin, Dodge and Oakland dealers, are giving their dealers special courses on the electrical systems of their cars. There are about 34 dealers here, and every morning they listen to lectures by factory experts.

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Over two hundred Overland dealers and salesmen attended a banquet given by the Overland Fort Dodge Co. Thursday evening. Tremain & Rankin gave a banquet to 34 Dodge dealers Tuesday night. The Knight Motors Co., State agents for the Stearns-Knight, gave a banquet to their dealers Friday night. Nearly every dealer had a banquet.

With few exceptions, the store windows are decorated in honor of the week. Perhaps the best window is that of the Boston store, where an Overland Country Club is placed on display, and used as a basis for an attractive clothing advertisement. Overland got as much publicity as did the Boston store.

The show is staged by the Fort Dodge Dealers' Association, of which A. C. Heath is president, M. Q. Daley, vice-president and G. W. Tremain, secretary.

A Car to Every Eight Persons in Fort Dodge Territory

And During 1917 Dealers Expect to Sell at Least 11,000 Cars

FORT DODGE, IOWA, March 10—This is claimed to be the heart of the prosperous agricultural district of the United States. At any rate, it is the automobile center of northern Iowa.

Last year Fort Dodge dealers sold and distributed 17 per cent of the entire number of automobiles sold in the State of Iowa.

By actual count, the number of cars sold in this territory last year is 7384. In 1915 there were 3971 cars sold in this territory, so last year's sales show an increase of over 80 per cent above those of the previous year.

This means that $6,645,000 was spent by the people in this territory last year for new cars, assuming the average price to be $900 per car. If the coming season registers a gain of 50 per cent, approximately 11,000 cars will be sold in this territory, representing a business of $9,900,000.

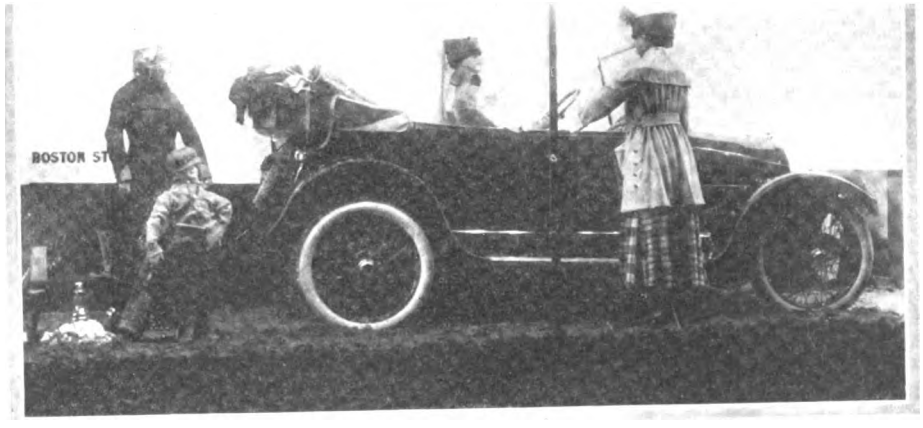
The trading territory reached by Fort Dodge includes 26 counties, having a total population of 437,464. In this territory there were 53,764 automobiles registered in 1916. This means that one person in every eight now has an automobile. For the rest of the State the average is one in twelve.

Agricultural prosperity is the reason. This is the part of the country that prosperity originates. As was stated in the story of the Des Moines show, the total income of the Iowa farmers in 1916 was three-quarters of a billion dollars. No small portion of this is in the Fort Dodge territory.

Prosperity also originates in the gypsum and clay deposits surrounding Fort Dodge. The city has the slogan, "We plaster the earth." In the gypsum industry five mills turn out annually 460,000 tons valued at $1,500,000. In the clay products industry, 225,000 tons, valued at $1,800,000, are produced each year.

Most of the twenty Fort Dodge dealers are sub-agents, and cover from one to the whole 99 counties of the State. The majority, however, have about 15 counties in northern and northwestern Iowa.

In spite of the fact that there is now one car to every eight persons in their territory, the dealers are optimistic. Eight thousuand cars have already been contracted for which, when sold, will only bring the rate down to one in seven. And the farmers can go better than that with the present prices on farm produce.



During the Fort Dodge show there was a window dressing contest. This is a window dressed by a dry goods concern and shows an Overland Country Club model—and accessories

Iowa Dealers Working for Good Roads

FORT DODGE, IOWA, March 10—The Iowa State Dealers Association is taking an active part in passing legislation of benefit to the trade.

On March 7 a State dimmer law passed the House by an almost unanimous vote. This law is based on the American Automobile Association national dimmer law, was endorsed by the dealers association and proposed by Representative McFarlane of Waterloo.

There is now pending a garage lien law that is similar to the New Jersey law. By this law the dealer may enforce a possessary lien, and it makes possible the sale of a car for charges due. It also provides for filing notice of lien with the county recorder, and the attachment and foreclosure at any time after file.

A corrective measure for prevention of abuse of the dealers numbers is also pending. In the past dealers have been known to have 72 number tags, and to be able to account for only 10 sets, the balance being held by owners. This bill states that only dealers may use dealers' numbers.

A bill introduced by the State Sheriff's Association is also partly endorsed by the Dealers' Association. The part endorsed makes it a felony for anyone to mutilate the serial number of a car with intent to conceal its identity. The automobile thief has caused much trouble here, and this will greatly increase the possible penalty.

Clearing House for Used Cars

FORT DODGE, March 10—The Dealers' Association of Waterloo has established a clearing house to determine used car values, and to thus enable them to carry on their used car business on a square basis.

At present the plan is not all worked out. It now goes like this: When the owner comes to the dealer and wishes to trade in his old car, the dealer calls up the clearing house and gets the value of that car—that is, what that car will bring when sold. That determines the allowed price on the car.

Should the owner be dissatisfied he may go elsewhere, but through the working of the system he finds that he can get no more. By this the dealers are not unconsciously cutting each other's throats—or more likely, their own.

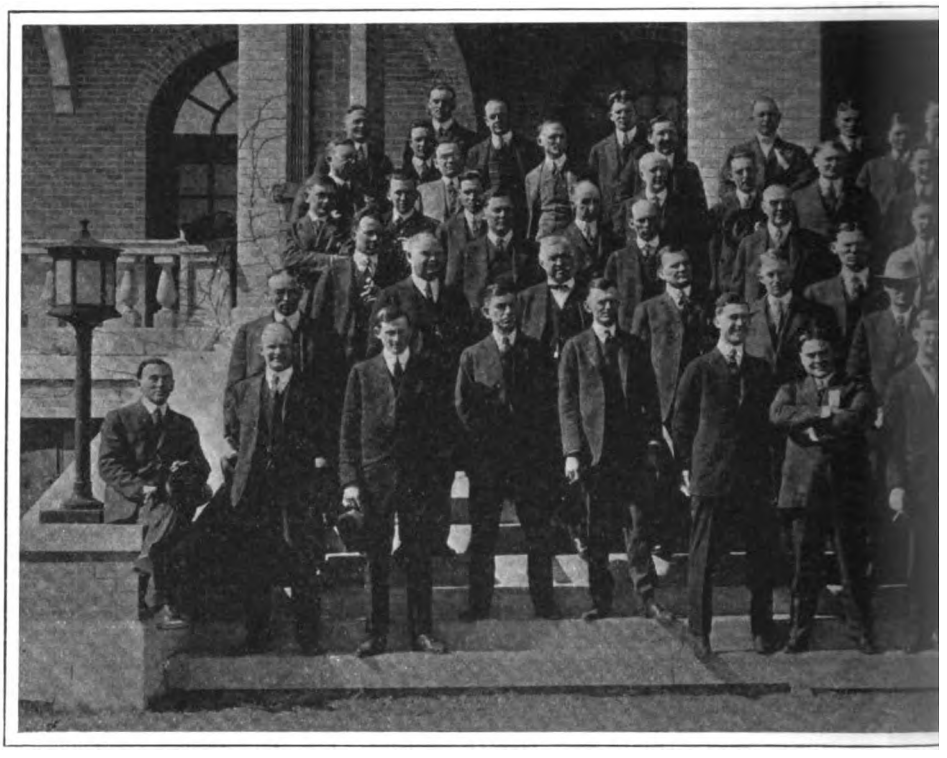
The dealers are not bound to stand by the price stated by the clearing house, but they are able to find what the car is worth.

In Dubuque the Dealers' Association is proposing a more complete system. Each of the dealers is to take stock in a used car market and hire a competent man to take charge of the business. All prospects are to be sent to this market, and the cars purchased and sold for the common good of the association members. Success depends on the honesty of the dealers.

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Texas Car, Accessory and Tire Dealers

Over 200 Members of the Trade Assemble in Dallas



Here are some of the more than 200 Texas car, accessory and tire

DALLAS, March 10—Texas automobile dealers have organized. They completed the organization of the Texas Automobile Dealers' Association Thursday, March 8, at a meeting of 200 dealers. Officers elected were as follows:

President

J. E. Butler .....Corsicana

Vice-Presidents

C. F. Gydeson.....Houston
Roy Munger .....Dallas
H. H. Bryant .....San Antonio

Treasurer

W. F. Rose .....Dallas

Secretary

C. L. Zutavern .....Dallas

Directors

W. G. Langley .....Dallas
H. L. S. Robertson.....Houston
F. A. Weinrich .....San Antonio
Hub Dibbs .....Fort Worth
C. L. Edmiston .....Crockett
S. B. Vaughan.....Amarillo
J. M. McFall.....Wichita Falls
P. G. Stokes.....Big Springs
W. T. Herrick .....Waco
J. E. Osbourne .....Paris
H. E. Pierce .....Denison
C. E. Bancroft.....Corpus Christi

It was decided to hold the next meeting at San Antonio some time between March 1 and 15, 1918.

Immediately after perfecting the organization the association voted unanimously to affiliate with the National Automobile Trades Association. This resulted from the address of J. C. Thorpe, of Chicago, a director of the national body.

Whole Trade Admitted

There was considerable discussion regarding who would be eligible for membership. The original draft of the by-laws stipulated that only car dealers could be members of the organization. An amendment was ordered admitting accessory dealers as members, it being argued that the success and prosperity of the two lines of trade are so closely identified as to warrant the inclusion of the accessory dealers. Wholesale dealers were limited to associate membership, and will have no voice in the elections of the organization.

Lengthy discussion ensued over the question of what status should be conferred upon manufacturers' representatives in the organization membership. It was finally decided that they would be entitled to hold auxiliary membership, without privilege of participating in discussion or voting in elections. It was argued that this class of members can do much to promulgate the interests of the association in the more remote sections of the State, and can lend a great influence by reason of their experience in all fields of the industry.

10 States Affiliated

In affiliating with the National Automobile Trades Association the Texas association virtually affiliates with the State associations of nine other States of which the national association is composed.

In the afternoon the dealers heard an address by Prof. Coglin, of the highway department of the Texas Agricultural and Mechanical College, on the Texas Highway Commission as proposed. There was a brief discussion of the subject.

At the first day's session the following committee on nominations for permanent officers was appointed: George Conant, Houston, chairman; Don Safford, Dallas; F. E. Weinert, San Antonio; Tony Chisum, Amarillo; J. E. Osborne, Paris; F. E. Pryor, Austin; P. G. Stokeg, Big Springs; H. D. Sleeter, Houston; J. A. Atwood, Dallas, and H. W. Pierce, Denison.

Another feature of the first day's program was the address by J. C. Thorpe, general director of the Automobile Trades Association. His subject was, "The Benefits of Organization." Still another feature was a visit to the automobile salon, at which the visitors were shown the very latest in closed cars.

Thorpe outlined the dealers' problems specifically and said they found their main origin in unhealthful business practices or undeveloped points of contact between the recognized trade factors. He spoke of price maintenance and its importance in determining the profits of the dealers, some of whom in the past have been shortsighted enough to cut resale prices established by the manufacturers. The used car problem, he said, is a prolific source of loss to the dealer. Up-to-date accounting systems were recommended as a means of determining what principles of business procedure was more productive of net profit.

Urge Better Business

Thorpe urged the association to affiliate with the National Automobile Trades Association in order that the Texas dealers may enjoy the advantage of business policies and formulaes developed through years of research work by the National association. This association has developed and successfully employed a number of expedients for ridding territories of pirate dealers and price-cutters, who worked to the detri-

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Form a State-Wide Trade Association



Dealers who have formed the Texas Automobile Dealers Association

Immediately Affiliate With the National Association

ment of themselves and all legitimate dealers, said Thorpe.

Those Who Attended

Among the members who joined the association were the following: J. E. Osborne, Paris; Tom Chisum, Amarillo; Sam B. Vaughan, Amarillo; C. L. Timmons, Amarillo; W. G. Bentley, Temple; J. H. Connell, Dallas; W. G. Hyatt, Rotan; R. L. Allison, Farmersville; Louis F. Rick, Dallas; J. T. Stewart, Dallas; J. H. Glass, Houston; J. W. Couch, Snyder; F. E. Weiner, San Antonio; M. S. Tigert, Houston; B. D. Kent, Houston; W. J. Guewler, Abilene; J. M. McDade, Houston; W. A. Williamson, San Antonio; Ward Delaney, Beaumont; L. E. Couch, Dallas; Ralph Read, Childress; R. G. Kott, Fredericksburg; Bob Sears, Whitewright; P. G. Stokes, Big Springs; George Conant, Houston; J. B. Stephenson, Houston; Herbert E. Nindass, Houston; John E. Morris, Taylor; A. C. Burton, Houston; Edwin Grede, Fredericksburg; R. F. Dugan, Abilene; Howe Steele, Houston; B. R. Webb, San Antonio; C. W. Manford, Houston; H. D. Schleeter, Houston; J. M. Davis, Trumbull; G. W. Kelsow, Jacksonville; J. W. Sturgis, Dallas; L. G. Murray, Dallas; F. E. Pryor, Austin; T. J. Christal, Austin; H. H. Cullen, Austin; W. L. Simpson, Gainesville; T. E. Lester, Temple; L. H. Walter, Hillsboro; R. L. Harwell, Ballinger; L. J. Wilson, Coleman; R. O. Walton, Ballinger; Curtis Norman, Paint Rock; M. S. Tuggart, San Antonio; J. R. Cullom, Amarillo; J. P. Short, Dallas; R. G. Marshall, Hillsboro; Charles E. Bancroft, Corpus Christi; C. Chaddick, Corpus Christi; E. S. Huey, Cisco; H. G. Perlstein, Beaumont; H. H. Berryman, Alto; Posey E. Phelan, Lampasas; H. E. Pierce, Denison; R. F. Wulff, Brady; W. F. Brittson, Dallas; Roy Munger, Dallas; C. L. Zutavern, Dallas; R. L. Cameron, Dallas; W. C. Langley, Dallas; W. C. Cameron, Dallas; H. E. Hall, Dallas; J. W. Atwood, Dallas; W. F. Rose, Dallas.

Texas Has 197,687 Cars

AUSTIN, March 10—During the period of a little less than 9 months, ending Dec. 31, 1916, there were registered in the different counties of Texas a total of 58,880 cars, bringing the total registration of the State up to 197,687, according to a census just completed by the Dallas Morning News. The percentage of gain during that period was more than 42½ per cent. According to the reports of dealers the gain for the months of January and February of this year will show more than 50 per cent.

Advertising Pays

DALLAS, March 10 — Advertising pays. That's the slogan of the F. L. Shaw Automobile Co., Studebaker distributer. Shaw has just contracted for 150 3 x 5 road signs to be placed on the prominent roads to various parts of the State leading to Dallas.

Missouri Gets New Law

ST. LOUIS, March 12—The new motor car license law has been passed by the Missouri Assembly and will become effective July 1. It was designed as a revenue measure, being calculated to raise $1,000,000 additional but automobile clubs and other friendly interests obtained some concessions. The charges for licenses are:

12-hp., $4; 12-24 hp., $6; 24-36 hp., $10; 36-48 hp., $14; 48-60 hp., $16; 60-72 hp., $20; 72-up hp., $24.

The law restricts cities to a charge of one-half of the state license for cars and branch offices for collections will be opened in Kansas City and St. Louis It is a misdemeanor for an intoxicated person to drive a car and after three convictions the driver's license shall be revoked and not issued until the trial judge and prosecuting attorney indorse the application. Motor cut-outs are prohibited. Tampering with or using a machine without consent of the owner is made a misdemeanor, the punishment running up to five years in prison.

Requests of car owners that license numbers be required on front and back of machines was turned down, as was a heavily backed request for part year licenses when application was made after three, six or nine months had elapsed from the first of the year.

Horse Cars for Automobiles

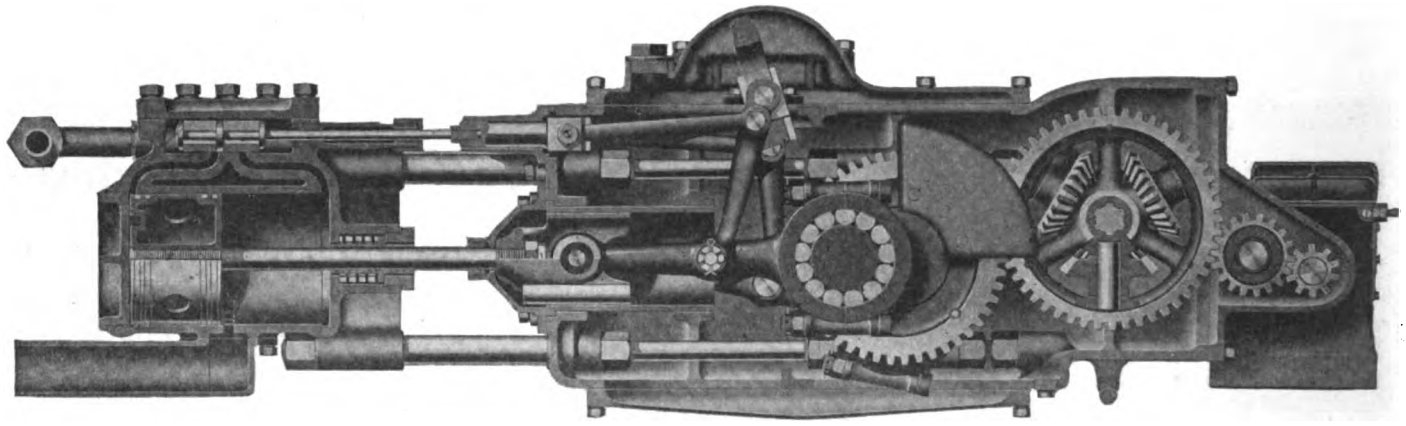
DECATUR, ILL., March 10—Daniel Bopp has adopted a novel method of beating the railway car famine annoyance. He has leased two Arms Palace stock cars, used in the shipment of horses, and will keep them in service for six months, moving exclusively between Decatur and the Reo factory at Lansing. Each car will hold three automobiles, and three to four round trips can be made each month, thus ensuring the delivery of eighteen to twenty-four automobiles each month. It is likely that other dealers will follow the example of the Decatur man in leasing such cars, thus saving expense, doing away with possible damage en route, and also expedite shipments.

Lights on Cars Only

WILMINGTON, DEL., March 12—Warning lights are not necessary on vehicles using Delaware roads at night —except on motor cars—according to the judgment of the Delaware State Senate, which a few days ago killed a bill to require all vehicles using the roads at night to carry white lights.

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Doble Is Acme of Luxurious Locomotion



Section of engine and rear axle showing direct spur gear drive. The exhaust port is uncovered by the piston toward the end of its stroke. The generator drive is shown at the extreme right

Boiler Under Hood—Engine on Rear Axle—Control Simple—Uses Little Water—Burner Unusual—Hydraulic Service Brake

EXTRAORDINARY acceleration, absolute quietness, extreme simplicity, entire absence of vibration, relatively low cost of operation and none of the disadvantages of the old-time steam car briefly sums up the new Doble, which was seen at the New York and Chicago shows. It is the culmination of several years of patient development by Abner Doble, and is manufactured by the General Engineering Co., Detroit. Its weight is about the same as a gasoline car of the same size, and the price is $2,500.

Briefly, the Doble steam car employs a vertical-tube steam generator placed under the hood, where the engine would be in a gasoline car, and under this is placed a combustion chamber lined with a refractory material. Kerosene is introduced here, and ignited by a spark. The steam passes to a two-cylinder engine mounted in unit with the rear axle, the drive being direct from the crankshaft to the differential by spur gears having a ratio of 47 to 49. A condenser is utilized, so that the steam is re-converted into water and used over again. The kerosene tank is mounted at the rear of the chassis, just as a gasoline reservoir would be carried. There is no clutch, no change-speed or reverse gears.

Points of Superiority

It is vastly superior to the steam cars of a few years ago because:

1. There is never the slightest indication of escaping steam; the ample condensing system takes care of that. So little steam is lost that it is only necessary to fill the water tank under the front seat, once every 1000 or 2000 miles.

2. Sufficient steam for running may be raised under the most adverse circumstances in 1 minute, and to do this it is only necessary to close a switch on the cowl. This is a great improvement over older types in which it is necessary to light a pilot light and do more or less preliminary work before the main burner can be lighted. All of which is disagreeable work and requires time besides, usually about 15 minutes. If the car has been used within a few hours it can be started instantly. The quick-starting is obtained by the tremendous amount of heat the burner is capable of producing.

3. The whole chassis has been developed and simplified so that in its present form it is as big an advance over steam cars of a decade ago as the present gasoline car is ahead of its prototype of that time. In fact, one of its strongest appeals to popularity is that it is ultra-modern, even to the body lines.

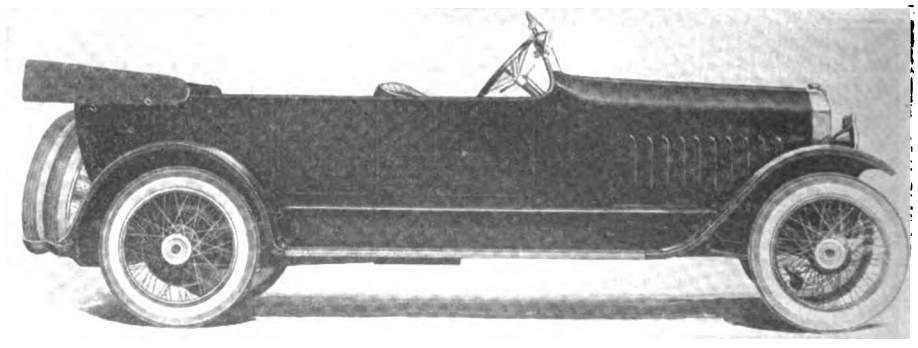
4. The heat carried back from the hood is no greater than in the average gasoline car for the reason that the heat produced by the generator is no greater than that produced by a gasoline car of the same weight and running at the same speed assuming, of course, that the overall efficiency of both is the same.

The only real innovation in the car is in the method of handling the fuel and burning it, but also of extreme interest is the engine lubricating system, in which standard cylinder oil is merely mixed with the water, and the use of a hydraulic brake which although sensitive to a degree, will lock the wheels with the expenditure of about as much effort as it takes to depress the ordinary accelerator pedal.

Steam at 600 lbs. pressure, slightly superheated, is furnished by the generator, which is a vertical water-tube design, the water being inside the tubes and the flame outside. The steam generator is divided into two parts by a fire brick wall, one is the boiler and the other the economizer. In the latter part the relatively cool water from the condenser is heated before it is sent into the boiler, where it is turned into superheated steam.

The water level is automatically maintained about halfway up in the tubes. The flames from the combustion chamber below the boiler rise between the tubes converting the water into steam, and then superheat this steam in the upper half of the boiler. From thence the burned gases pass over the fire brick wall which divides the boiler from the economizer, and sweep over the economizer tubes, giving up their heat and warming the water which is on its way to the boiler.

The air for combustion is furnished



Distinctive lines give this car a mark of individuality. The hood and radiator are unlike those on any other car, yet are very attractive

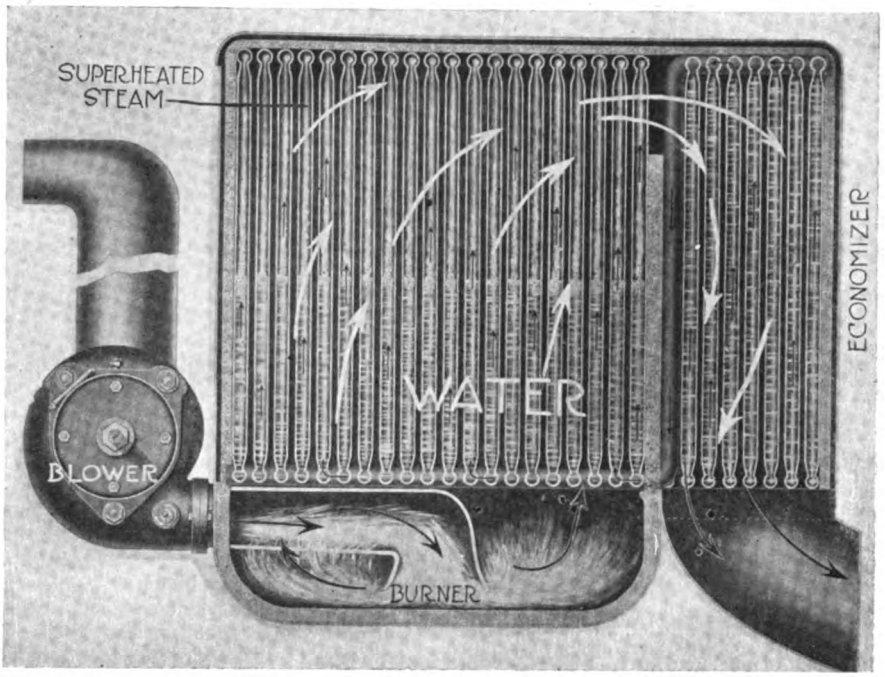
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by a small electrically-driven centrifugal blower, similar to that used in vacuum cleaners. The air passes through a venturi tube, at whose throat there is a nozzle which communicates with a float chamber, which is supplied with fuel from the fuel tank by 3 lbs. air pressure. The increased velocity due to the contraction of the passage draws the fuel out and breaks it up in small particles, so that when it enters the combustion chamber under the boiler it is almost as thoroughly mixed as if it had actually been vaporized.

In starting, the first step is to close the switch on the cowl which starts the electric blower. At the same time an electric spark occurs in the combustion chamber, and as soon as the fire is lit the spark automatically goes out. The pressure is maintained at 600 lbs. by a device which shuts off the blower as soon as the pressure reaches this point. The generation of steam may be arrested by shutting off the blower by hand.

Condenser Is Radiator

The exhaust steam from the engine passes to a regulation automobile type honey-comb radiator, where it is condensed and returned to the water tank from whence it is drawn by a pump attached to the engine, and which forces the water into the economizer. Here the water overflows into the boiler in which the water level is automatically maintained about halfway up by a bypass valve so arranged that when the regulator tube is filled with steam and consequently hot, the bypass valve is closed by the expansion of this tube, forcing the water from the pump to lift the check valve and enter the boiler. As the water level rises the regulator tube is filled with water from an exposed pipe, and consequently is quite cool, so that the relatively large change in temperature causes the regulator tube to contract, thereby opening the bypass valve and allowing the water to return to the supply tank.



Steam generator showing boiler at left and economizer, where water is heated, at right. The blower is at the left and the burner is below. Note the firebrick lining surrounding generator

The greatest disadvantage in steam cars has always been known as the process of firing up. The burner has generally required preheating. The discovery by Doble that it is possible to ignite kerosene by an electric spark under given conditions is one of the most notable achievements in connection with the improvement of the Doble steam car. The conditions which must obtain in order to secure certain ignition are:

First, a mechanical separation of the kerosene particles into a number of sufficiently small parts to insure a rise in temperature past the point of ignition during the time in which the heat is absorbed from the spark.

Second, the spark must occur near the atomizing nozzle at a point where the mixture is so dense that one particle of kerosene is ignited.

Third, the velocity must be low enough so that the particles will have time to absorb sufficient heat from the spark to exceed the ignition temperature.

Fourth, the mixture must be richer at the point where ignition is to occur than it is for most efficient combustion.

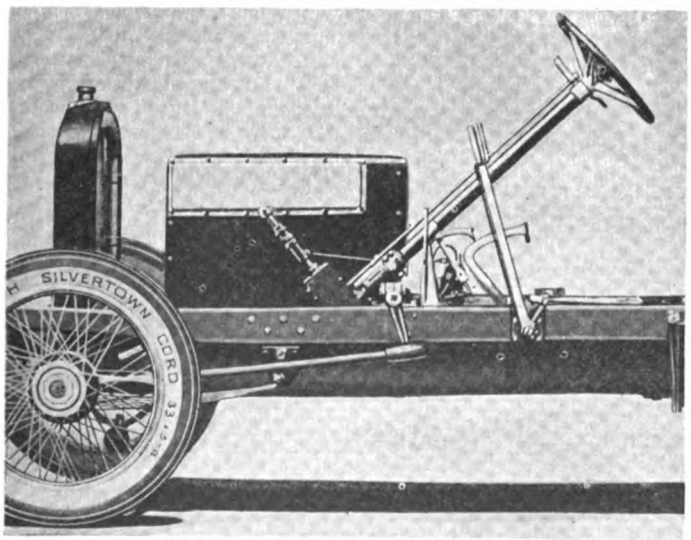
The engine is bolted to the axle at the rear and is hinged to a cross-member of the frame at the front. It is a two-cylinder, double-acting simple engine embodying the unaflow principle, which is the most recent development in stationary engine practice, and which gives better economy inasmuch as the steam and cylinder wall temperature more nearly correspond for different positions of the piston. With the ordinary steam engine the relatively cool exhaust steam comes in contact with the same cylinder wall and port surfaces which a moment before were swept with hot live steam. This means a considerable heat loss. In the unaflow engine the steam leaves by a central port which is uncovered by the piston; thus the cool exhaust steam is quickly disposed of and the surfaces have very little chance to cool before more live steam is admitted.

The bore is 5 in. and the stroke 4 in., and a 1-in. cutoff is sufficient for all ordinary conditions. For starting or heavy pulling a cutoff at ⅝ stroke is used and for economy ⅛ is used. The engine never runs more than 600 r.p.m., and this is only at excessively high speeds. It is powerful enough to spin the wheels on dry pavements.

The main bearings and the big end connecting-rod bearings are annular roller and are of such proportions that no wear should occur during the natural life of the car. All of the other bearings, such as wristpins and valve gear bearings, are hardened steel running in hardened steel bushings. The piston rod glands are cast iron and the dimensions are so liberal that they will remain tight indefinitely.

The control of the car is extremely simple. The speed is regulated by a large throttle valve directly under the steering wheel, and is operated by the right hand. The position of the cutoff valve is regulated by a pedal.

Electric lighting is provided for by a small generator driven from the rear axle.



The front of the chassis showing the boiler. The neatness of the whole chassis is in sharp contrast to the designs of a few years ago and give a rough gage as to the development that has been made

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Accounting and Business System

Questions and Answers about Motor World's Simplified System of Accounting

By T. W. Snead

Starting the System

Editor System Department: We are enclosing statements showing standing of our business Jan. 1 and for the month of January.

We have followed your directions as best we could, but owing to the fact that we did not receive the book until late in the month, and that we have run at a loss for the month, we are unable to make up the forms correctly.

We will appreciate your listing the figures we give you just as they should be on Tables 1 and 2. Also list the inventory as on Table 3, and we believe we will get along all right.

You will notice in our recapitulation figures we list coupons redeemed. We use coupon books, which we sell to our customers at $8, and are paid for on delivery; the money we enter in the All Cash Received column and credit it to coupons in the Customers Accounts column. When the coupons are redeemed for work or supplies we handle them as cash and enter them in the All Cash Paid column as Cash Paid Out, and enter the same amount in the All Other Accounts column, which is charged to coupon account.

We also show Car Sales Account debit $155. This is a deposit with the factory. Notes payable, $298.33, is for money borrowed during the month, and the debit side, $33.87, was paid on the note.—Freeland-Winstead Motor Co., P. T. Freeland, Jr., Roxboro, N. C.

Herewith is a statement of Income and Expense for the month, made up from the figures as taken from Forms 1 and 2, and in addition to this, we have compiled Table No. 3, which shows in the third set of figures what you started with Jan. 1, and in the first set of figures what happened in the month of January.

The next figures show the result of what happened in January, which is added to or subtracted from the figure that you started with Jan. 1. The result is your statement of Assets and Liabilities as of Jan. 31.

We do not believe you have made every entry that you should have made on Forms 1 and 2, which is shown by various discrepancies in your statement. One of these is that you paid out more cash than you received, which is probably due to the way in which you handle your coupon books. In the column designed to take care of the Cash Received and Cash Paid, there should be entered only the actual Cash Received and Paid, and if you paid out more than you have received, then your bank account shows an overcharge of $35.50.

Again, you have Income from the sale of Gasoline, Repairs, Parts and Accessories, but there does not seem to be any credit to your stock account for these three classes of merchandise. This would indicate that you have not charged yourself with the cost of the Gasoline, Parts or Accessories that you have sold during the month.

It is necessary to charge yourself with the cost of these goods, and your credit entry is to your stock account. Due to the fact that we do not see any credit to this stock account, we do not believe that you have made these entries. This will increase your expenses and decrease your stock account, which would make a difference in your net capital investment or your Profit and Loss account.

Again you do not seem to be reserving anything for depreciation of your equipment and furniture and fixtures. This would again add to your expense, and you have not shown that you owe interest on Notes Payable amounting to $564.46. This should be charged to Expense, which would again increase that item.

INCOME AND EXPENSE

Income—Gasoline			$61.70
Repair department			85.75
Parts and accessories			123.55
			$271.00
Expense—Gasoline		$14.00	
Repair department		102.56	
Parts and accessories		134.85	
Car sales		155.00	
(?) Coupons redeemed		17.75	
General department		107.67	
			531.83
Net loss—January			$260.83

Partnership Accounted

Editor System Department: The writer bought a 40 per cent interest in this firm, or co-partnership, Dec. 1, 1916, and opened a regular double entry set of books, but we now desire to install the Motor World Simplified System.

And to that end I am enclosing the balance taken from the firm's books as of Jan. 20, 1917, together with sheets from the Motor World Simplified System, and ask that you spread these items on the Motor World forms so that I may be certain of a correct transfer.

You will note from the opening entries that the merchandise investments of both partners has been treated as cash and run through the Cash Book. I am not certain whether or not the combined merchandise investments of both partners of $9,273 should show in the All Cash Received and All Cash Paid columns of your system.

Since these are partnership books, and I am especially desirous of having them correct, I am looking to you to start me right in this new system. I feel that I can handle the day to day transactions all right with the help of the book of instructions received with the system.—Theodore Ingels, Odebolt, Iowa.

STATEMENT OF ASSETS AND LIABILITIES, TABLE NO. 2

	What Happened in January		Result of What Happened		What You Started with Jan. 1, 1917		What You Had Left Jan. 31, 1917	
	Debits	Credits	Increase	Decrease	Assets	Liabilities	Assets	Liabilities
Furniture and Fixtures					$141.50		$141.50	
Equipment—Garage					32.85		32.85	
Repairshop					1,452.80		1,452.80	
Gasoline					100.00		100.00	
Stock—Gasoline	$63.00		+$63.00		42.00		105.00	
Parts and Accessories					847.69		847.69	
New Cars					—		—	
Old Cars					675.00		675.00	
Prepaid Insurance					3.40		3.40	
Cash	530.15	$565.70		—$35.55	—			*$35.55
Customers' Accounts	59.18	20.00	+ 39.18				39.18	
Notes Payable	33.87	298.33		+264.46		$300.00		564.46
Accounts Payable		63.00		+ 63.00		—		63.00
Reserve—Free Service						168.00		168.00
Capital Investment						2,827.24		2,827.24
Profit and Loss	260.83		260.83				260.83	
Totals	$947.03	$947.03			$3,295.24	$3,295.24	$3,658.25	$3,658.25

* Overdraft.

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Your Asset and Liability Accounts are not entered on Forms 1 and 2 in order to start the system, but if you will be good enough to refer to page 32, of the System Pamphlet, and especially to Table No. 3, you will get a better idea of what we are trying to explain.

You first determine all of your asset accounts such as your Equipment, your Cash in Bank, Total Amount Due from your Customers, the Value of your Cars, Parts and Accessories, Tires and so forth that you have in stock and in like manner determine your liabilities, such as your Notes Payable, your Accounts Payable and the Capital investment of the two partners.

The difference between your Assets and your Liabilities will be your Surplus or Profit and Loss. If the Assets exceed the Liabilities, you will show a profit or a surplus. If the Liabilities exceed the Assets, you will show a debited surplus or a loss. When you are able to do this, you will have a balance sheet and you will open an account, using Form 3 at the back of your binder for each one of the Asset and Liability Accounts.

You then start to operate the system through Forms 1 and 2 and do not touch your Asset and Liability accounts until the end of the month, when you will post to them the result that you find on Forms 1 and 2 for the month ending. This, you will see, is better illustrated by Table 2 on page 30, which shows you how to determine the increase or decrease in your Assets and Liabilities from one month to the other.

After you have arrived at a balance sheet, and in arriving at this balance sheet eliminate all of your Income and Expenses by finding the difference between the two and crediting or charging your Profit and Loss account with the difference, and are still unable to open your books properly, let us know and we will endeavor to trace out anything that you are unable to unravel.

Buying Licenses

Editor System Department: We started your System Jan. 1 and have found it to be very good, but we are somewhat puzzled to know how to take care of the following:

John Smith wishes us to order his license. He has same charged to his account. We know this is a debit to accounts payable, but do not know where to give the credit, as we pay for these licenses with our own check. How would the latter be taken care of on our expense sheet and in our recapitulation?—Star Motor Car Co., by G. P. Maloney, Louisville, Ohio.

If you should buy a license for John Smith it would be entered on Form 2, as follows: Under the All Other Accounts column on the Debit side you would charge Accounts Receivable, John Smith, $10, and your credit entry would be your check drawn.

It is true that 90 per cent of the charges of customers would be entered on Form 1, but sometimes you will have such an entry as this, and in addition Form 1 you will, of course, have to post this charge that you will find on Form 2. to posting the charges to the individual account sheet from the Debit side of

At the end of the month the recapitulation of the All Other Accounts column would show that you have a charge to Accounts Receivable in this column as you will have for other accounts, and the total charges in this column on Form 2, plus the charges to Accounts Receivable for customers on Form 1, less the credit on the Credit side of Form 1, will tell you what your Accounts Receivable are as of that date.

Sale of Trucks

Editor System Department: Please send details and cost of your accounting system as applied to business as follows:

Motor truck sales, truck consigned by factory, factory to receive cash when trucks are sold, trucks to be sold on time, on lease contract, bearing 8 per cent, bank to advance face of contract at 6 per cent.

Service to be given by factory, at factory except one mechanic at sales station. Willp robably handle accessories in limited quantity. Would like to keep such as Car Sales, Repair Department, Accessory and Supplies, and so forth.

Form 2 is designed to take care of your cash disbursements and Expenses and divides these expenses into like departments with the exception of your General and Overhead department which of course, have no income other than an occasional item.

Form 3 is designed to take care of the charges and credits to your customers made during the month and all three of these forms are operated under one loose leaf binder.

When trucks are consigned to you by the factory, you would open an account called Truck Stock and would charge this account with all of the trucks sent you on account and you would credit an account which you would call Factory Account, consignment, which would be your Liability, provided, of course, the cars were sold.

When these cars were sold you would receive for them a note drawing 8 per cent which you would charge to an account called Notes Receivable and your credit would be to your Car Sales or Truck Sales department.

You would then pay the factory for these trucks which would be charged to the cost of trucks sold. After each sale has been made, you will, of course, adjust your consignment account with the factory and from your letter, we assume that it would be necessary to borrow the money from the bank with which to pay the factory.

In this case, you would give your notes to the bank with the leases on the trucks as collateral. In this event, your entry would be to charge Cash, when you received the money from the bank, and credit Notes Payable Blank Bank.

BALANCE SHEET, JANUARY 31, 1917

(Analysis of Assets and Liabilities, Table No. 3)

ASSETS				
Furniture and Fixtures		$141.50		
Equipment—Garage	$32.85			
Repairshop	1,452.80			
Gasoline	100.00			
		1,585.65		
		$1,727.15		
Less: Reserve for depreciation		.....	$1,727.15	
Cash (Overdraft)			.....	
Inventory—Gasoline stock		105.00		
Parts and Accessories		847.69		
Old cars		675.00		
			1,627.69	
Accounts Receivable—Customers			39.18	
Prepaid Insurance			3.40	
				$3,397.42
LIABILITIES				
Notes Payable		564.46		
Add: Account Int. Payable		.....		
Bills Payable		63.00	627.46	
Cash (Overdraft)		.....	35.55	
Reserve—Free Service		.....	168.00	
Capital Investment (Jan. 1st)		2,827.24	.....	
Less: Loss: Month January		260.83		
			2,566.41	
				3,397.42

Record Forms

Editor System Department: Sometime very soon I expect to start a garage for the purpose of repairing automobiles and to handle accessories.

In this business I wish to keep a separate account of receipts from material mdse. and labor. Also debit accounts for merchandise and labor separate, as well as all of the other accounts necessary in keeping a set of books, and in such a way as to have the accounts in shape at the end of the year for making out the corporation Income Tax report.

separate accounts on various departments, such as sales, service, parts, accessories, offices and executative, fixed overhead such as rent, light, etc.—W. A. Knuckey, 810 9th St., San Francisco, Cal.

The system complete sells for $15 and consists of Forms 1, 2 and 3, which are forms designed, first, Form 2, to take care of your Income and distribute the income over the various departments,

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THE LAW

As it applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions.
Always send copies of contracts, notes, etc., to which you refer.

By George F. Kaiser

Indiana Lien Question

Editor Motor World: We have a lien against two cars, both belonging to a concern that has gone into bankrutpcy and for which a receiver has been appointed. Can the receiver take these cars out of our possession before the lien has been paid? Does the lien have to be paid prior to other debts?—Leasure & Tomlinson, Kewanna, Ind.

I cannot say whether or not the receiver can take these cars out of your possession before the amount for which you have a lien has been paid.

The Indiana lien law provides that, "Every person, firm or corporation, or others engaged in storing or furnishing supplies for or repairing motor cars or trucks or motorcycles; or every person, firm or corporation, or others maintaining garages shall have a lien on such motor car, motor truck or motorcycle for storage charges or charges for keeping any such vehicle or for furnishing supplies for repairs.

"The dealer must file his lien in the office of the recorder of the county where the work was done within 60 days after the last item of work is done or the last item of material is furnished. The notice must show the amount claimed by the dealer and must also describe the vehicle. The lien must be foreclosed within 1 year by filing a complaint in the circuit court of the county where the vehicle is located."—Chapter 156, Laws of 1915, Indiana.

Before deciding whether or not the receiver can take the cars out of the dealer's possession, after a car owner has gone into bankruptcy in a case of this kind, we have to know if the car owner was insolvent when the lien came into existence, etc. In other words, the rights of the dealer depend on the facts in each particular case.

As you will have to retain local counsel in any event to protect your rights, I would suggest that you state all the facts to him and proceed according to his directions.

Michigan Lien Question

Editor Motor World: We notice the copy of the Michigan lien law in the January 10th issue of Motor World, and the law as outlined is not clear to the writer in one place, i.e., after the repair job has been completed, charged to the customer and released, does the lien law still hold good, and if so, what process of law is necessary to go through to take possession of the car? Or does it simply mean that the lien law does not apply if the car has been released by the garage that has done the work? —F. S. Milward, Ford Sales, Pontiac, Mich.

If the car is released voluntarily or even if it is taken out from the garage without permission, the dealer's lien is lost. This is the same in Michigan, New York and numerous other States and, of course, will be a hardship to the dealers until adequate lien laws are passed by the various legislatures.

Not Responsible For Robe

Editor Motor World: Last fall a man from a neighboring town left his car in my garage for storage and repairs to be made during the winter months. Among the things which were left in the car was a fur buffalo robe. As the car stood in the back corner, covered up, the robe was not discovered until work was being done on the car, which was in the late winter. Upon examination I found that the robe was moth eaten, in fact, ruined. Now I don't know whether the robe was in that condition when left here or not. Although I feel certain that it was not damaged here in the garage, I cannot say it wasn't. The man who left the car is a peculiar old gentleman who likes to have a row over anything that offers a chance. Can he hold me responsible for the robe?

Suppose a man bought a car second-hand and only paid part of the purchase price, giving a claim on the car for the remainder. He brings the car to my garage, and while there he buys supplies from me. Can I hold the car for repair bill against the man who has possession, and also against the man who has the claim for part of purchase? —Perplexed, Montpelier, Vt.

I don't think there is a chance in the world for the old gentleman who likes to have a row to hold you responsible for the moth eaten buffalo robe. You are not running a storage warehouse but a garage, and if he saw fit to leave the robe in the car he must stand the consequences himself, without help of legal redress. If he makes a complaint simply tell him that the car was not moth eaten, and that you were storing the car and did not care whether he put a fur buffalo robe or a basket of eggs in the tonneau, and that you are no more responsible for the damage to the robe than you would be if the eggs spoiled.

The Vermont law provides that "Every person who makes, alters or repairs any article of personal property at the request of the owner has a lien thereon for his reasonable charges, and may retain possession of the same until such charges are paid, and further may, if such charges remain unpaid for 3 months, and the value of the property does not exceed $100, sell the same at public auction by posting notice in two or more places in the town of his residence for 10 days." Under this law you can hold the car for the repair bill, but I do not think you can hold it for the purchase price. You simply say that you have "a claim on a car" for the remainder of the purchase price. I do not understand this to mean either a chattel mortgage or a conditional bill of sale.

Must Pay Theft Claim

Suit was brought by a car owner against an insurance company, for recovery under a policy insuring against loss by theft.

The car owner showed that he drove his car aboard a ferry-boat, left it on the forward deck, applied his emergency brake, shut off the engine and went into the cabin of the boat.

Several minutes later, after the boat had started, he came out and found the car gone, with the chain at the rear end of the boat lying loose and the gate half way open.

The court held that the above facts made out a case of theft, and that unless the insurance company could show that the car was not stolen it would have to pay the loss. Chepakoff, 7 National, 161 N. Y. S., 283.

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The twenty-eighth in a series showing

Dealers Who Have Made Good

R. E. BECKER probably has sold more cars than any other Michigan dealer. He has contracts for this year for 3500 cars, and his business for 1917 will reach the $2,500,000 mark. He is ahead of the game.

He started ahead of it. In the days when a horse couldn't pass a motor car without doing a jack-knive dive into the sidewalk, Becker was repairing automobiles. He is only 32 years old, but he has been connected with the industry for about two-thirds of that period. He saw in the early days that the Ford was going to be a good proposition. He got into the organization as stock clerk, rose to be claims and repair manager, was appointed distributer for the western half of Michigan, and then sold 10,000 of the cars that made joking famous.

The Overland-Southern Co., controlling all of Georgia, then attracted him, and he became one of the pioneers in developing the Southern territory. Michigan appealed to him more, however, and now he is president of three companies bearing his name.

He owns absolutely the Becker Auto Co. and the Becker Auto Supply Co. of Grand Rapids. The former handles the Saxon for western Michigan and the latter does a jobbing business in accessories. He heads the Becker Motor Car Co., Inc., of the same city, which distributes Studebakers for that territory, and he has large interests in the Becker Motor Co. of Fort Wayne, Ind., which handles Chandlers and Saxons for northern Indiana. Each company is separately organized and in a separate building.

The Why:

Successful salesmanship to-day, Mr. Becker believes, depends on proper financing and liberal but sound credit. The distributer must make it easy for the dealer to sell and for the customer to purchase.



R. E. Becker

Grand Rapids

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SCIENTIFIC CONSTRUCTION

GARAGES
SHOWROOMS
REPAIRSHOPS

By Harold F. Blanchard

Corner Garage 75x100

Editor Motor World: We are contemplating building a two story garage on one of two lots. One tract 75 x 100 will have entrance on the north and south ends and light from each end and from the west side as it joins a park. The other will be built on a tract 50 x 100 and will face street on the north and south ends and will be on the alley at the east. The north elevation will be the front of the building.

With either place we will want, on the first floor, the following: Car and accessory display room, ladies' and gent's rest room, open and private offices, stockroom, small battery room and rack for washing. The upper floor will have the shop and the paint room and welding department. Elevator will connect and stairway or small elevator for shop use.

We may have basement if we build on the smaller of the two tracts. Please draw for us suitable plans. Using the smaller of the two lots we may have entrances on three sides. The gas tank will be located on the north side.—Fire-Proof Garage, Wallace, Idaho.

The layout for the 75 x 100 plot is much more desirable, Figs. 1 and 2. It gives you more room in your showroom, store and offices, and it allows the use of a ramp to the second floor instead of an elevator.

We did not follow your request to put the repairshop on the second floor, because we found it impossible to do so and at the same time make a decent, satisfactory layout.

We have omitted the paint room of the former plan as there is no very good place for it; in other words, one position is about as good as another.

Garage Entrance Under House

Editor Motor World: I would like information regarding to running my car in the basement under my house which is about 10 in. above street level. The basement is 7 ft. 9 in. in the clear. The distance from the basement floor to the level of the ground is 5 ft. 3 in. The distance from the level of the ground to floor joists 31 in. I want to run the car in with the top up.—W. B. Martin, Albion, Nebraska.

The quickest way to find what the clearance should be is to measure your car, cut out a pasteboard model to scale. Then draw a rough sketch to scale of the proposed garage and driveway so that sufficient clearance is given the car with the top up.

For safety, the grade to your garage should not be over 15 or possibly 20 per cent. In fact, it is dangerous to make it over 15 per cent unless your brakes are always in good condition and you are certain that the surface of your driveway will never be slippery. As far as climbing in and out under ideal conditions is concerned, there is no reason why you should not make it 25 per cent, but of course, you are running a risk of smashing your car. If you make the grade 15 per cent, it will mean that a rise of 5 ft., 3 in. should be made in a distance of somewhere between 30 to 35 ft.

Motor World Guide

Corrected to Date Every Week

See Pages 46 and 47



Fig. 1—Attractive front for two-story garage 75 ft. wide

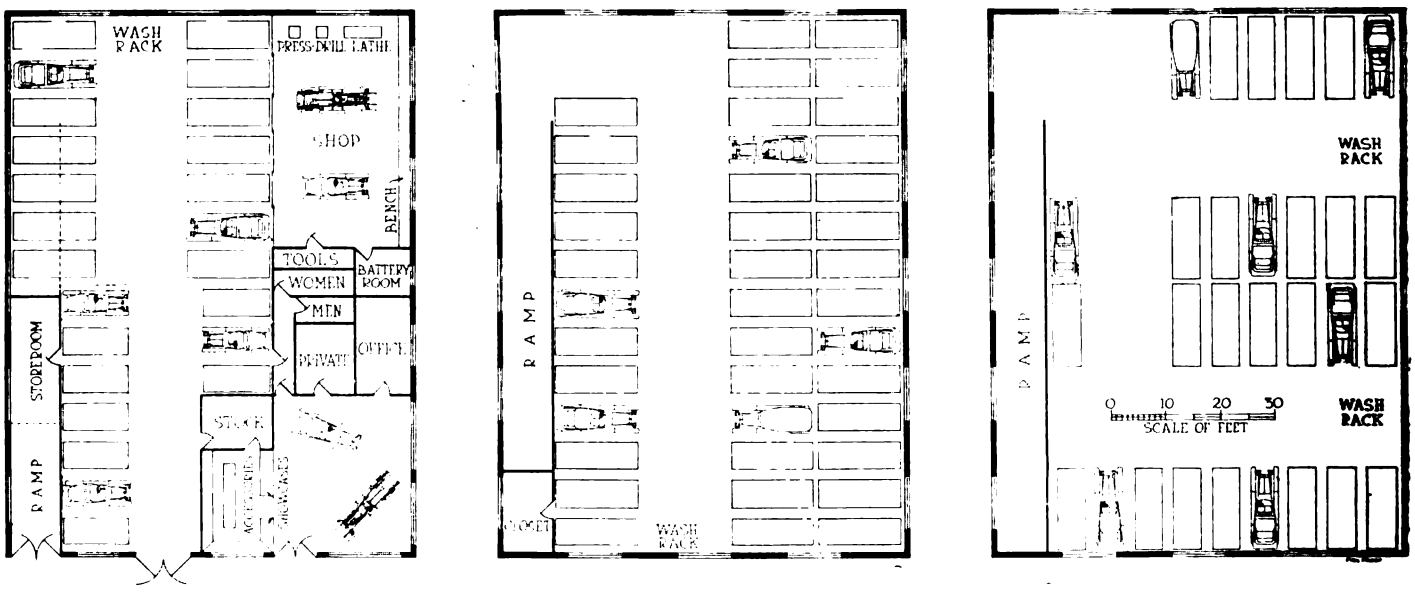


Fig. 2—Two layouts are feasible on the second floor, each of which has its advantages

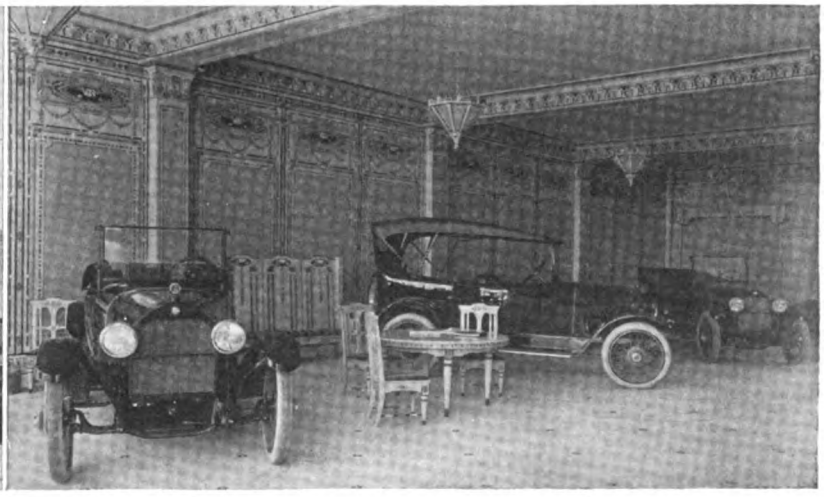
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Salesrooms of Los Angeles Dealers Set High Standard

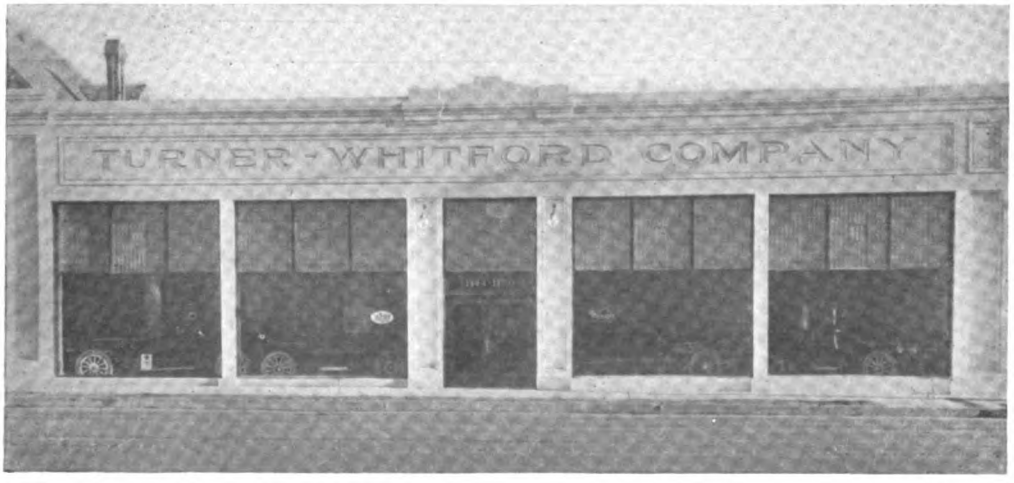


The effectiveness of simplicity in design is evident in the home of the Pearl Motor Car Co. which handles the Allen, HAL and Pilot lines. The two dwarf trees at the entrance relieve the plainness of the concrete work and focus the attention on the interior of the building





Exterior of Hartwell Motor Co. building, distributer of Jeffery cars and trucks



Above—Interior of Hartwell building. Quality in interior decorations as shown here, impresses the buyer unconsciously with the quality of the car

Left—Home of the Turner - Whitford Co. which handles the Ross Eight and Woods Dual Power

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Queries Answered

WE shall be glad to furnish information to anyone free of charge, but please be careful to give all the facts bearing on the matters you desire information on. All inquiries are answered by mail whether they are published or not, so kindly do not fail to enclose a two-cent stamp and your correct name and address. Please be sure to write plainly.

How They Did It

A Tale of Winter Business Success

"We made our January business as good as our July business through using the ideas in your Winter Business Number and your Winter Business Department," said the Motor Accessory & Tire Co., Pubelo, Col., to Motor World. "How did you do it?" Motor World replied. And here has come the answer. It is specific and worth-while. Read it—then go and do likewise.

Editor Motor World: This is in answer to your letter of Jan. 3 asking us about our plans which have made December business as good as July.—H. F. B.

1—Preparedness, we believe, is the first step. We were ready early in the fall with our winter lines, such as lap robes, winter fluids, and radiator and engine covers, etc.

2—We used the newspapers, telling the trade we had these articles and advising them of the advantage of their use. We also sent out personal letters advising them to buy while the assortment was good.

3—Being in the jobbing business, we advertised special lines, advising the consumers which dealers carried these lines, and asked them to allow their dealers to furnish them, always signing the ad The Motor Accessory & Tire Co., Distributers. This created a kindly feeling with our dealers, and they really got behind these articles and made good on them. We always, in our ads, gave the consumers to understand that the goods were guaranteed and that their own dealers were back of them.

We will give you one specific plan which we used to good advantage. Our City Council adopted a new ordinance to prevent glaring headlights, and, having been advised on this, we immediately got in touch with manufacturers of these lines and finally decided to push Warner-Lenz. We are sending you a copy of one of our ads showing you how we pushed them and in our own city sold nearly 1000 pair in about 30 days.

4—We believe in advertising and in pushing advertised lines, especially where the manufacturer is willing to back his line with a guarantee, and in our own business we believe in the money-back policy. A satisfied customer is always a good advertisement.

Yours for better winter business.—The Motor Accessory & Tire Co., Pueblo, Col.; by A. V. Fagerstrom, President.

Washing Soda Best For Cleaning

Editor Motor World: Do you know of a good system for cleaning automobile parts? If you do, will you kindly tell me about it?—Bridge Street Garage, Manchester, N. H.—Reader.

The best method of cleaning parts is to use a solution of ordinary washing soda in water. A large handful to a pail of water is about the right proportion. The solution should be boiling hot when used. This is superior to gasoline, kerosene and all other solutions, and is cheaper.

Obtain a wash boiler or a large iron kettle and a small single-burner gas stove. Only a small flame will be required to keep the solution at or near the boiling point all the time.

This solution is used extensively in the large service stations and factories.

Operation of Ignition Explained—Dual System Defined

Editor Motor World: Your instructions under Better Mechanics are right up to date, and I only trust that same will be continued until the entire field has been covered, i. e., until all the cars have been thoroughly dissected and remedies applied. Ignition in my opinion should receive more than mere attention. —Subscriber.

Answer.—Thank you for your comment on our Better Mechanics Department. We are always glad to know when we are hitting the nail on the head and when we are merely hitting it a glancing blow.

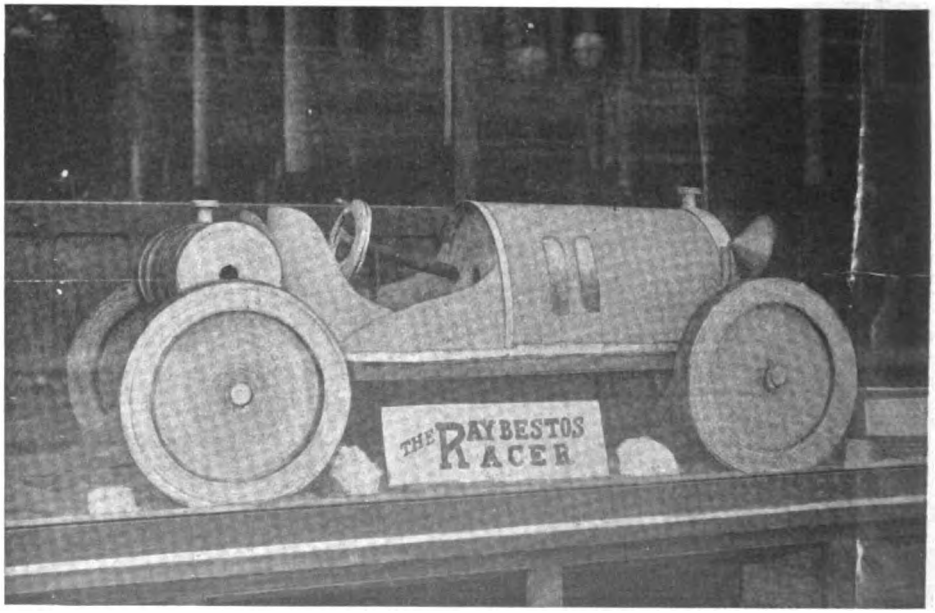
Won't you write us from time-to-time and give us some idea of the kind of articles which you like to read in MOTOR WORLD.

Before attempting to explain the dual ignition system it is advisable to explain the principle of all ignition systems.

In order to produce a spark which will jump the gap of the spark plug it is necessary to have a high-voltage current but all convenient sources of electrical supply are low-voltage and among these are numbered storage batteries, dry cells and the current generated by a magneto or by a lighting generator.

The low-voltage current is transformed into a high-voltage current by the use of an induction coil which really consists of two coils one wound round the other, the inner coil carries the low-voltage

A BRAKE LINING RACER



This fine display machine is made entirely of Raybestos products. The body, seats and radiator are constructed of high pressure compressed sheet packing and the balance is brake lining

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current and the outer coil is for the high-voltage current. The flow of current in the low-voltage circuit will not produce a flow in the high-voltage circuit but the instant the low-voltage circuit is closed or opened a temporary flow of current will occur in the high-voltage circuit and this is what produces the spark. The spark is more intense when the low-voltage circuit is broken than when it is made.

Consequently, any form of ignition device consists of a breaker mechanism driven from the engine and which periodically breaks the low-voltage circuit at the right time. The resulting current in the high-voltage circuit is switched to the proper cylinder by means of the distributor.

A dual system is one in which there are two sources of current, one being magneto current and the other dry cells or storage batteries. The same breaker mechanism is used regardless of which source of supply is employed. If there is an induction coil on the magneto armature there is usually a separate induction coil for use on the battery circuit. On the other hand, if the magneto current is sent through a separate coil this coil is also used for the battery current. In either case the principle is the same and the difference in detail is merely for convenience.

Overhead Valves for Fords

Editor Motor World: I am going to cut down some Fords and make racers out of them and I want to ask you a few questions. Please let me hear from you at once.

What ratio gear shall I use?

What do you think of aluminum pistons.

What advantages has a sixteen-valve over an eight valve?

How much more speed will I get with the sixteen valve?—C. G. Teal, McFarlan, N. C.

Answer.—We should advise a gear ratio of 3 to 1.

Aluminum pistons reduce vibration and permit of higher speed without placing an undue strain on the crankshaft and connecting-rods, also the reduction in vibration means less chance of nuts loosening up.

Sixteen valves will considerably increase the maximum speed and the efficiency so that the horsepower will be considerable increased. It is doubtful whether it will be necessary to change the gear ratio if you use a 16-valve motor.

It is impossible to say just what increase in speed you would obtain but you should be able to find this out from the concerns that are making 16-valve attachments for Ford motors.

Taking Up Bearings

Editor Motor World: What is the proper way of taking up main and connecting-rod bearings?

I am very much interested in your Better Mechanics.—B. J. McVear, 2327 Webster Street, Oakland, Cal.

WHEN DELIVERIES ARE SLOW GIVE THE CUSTOMER AN ALBUM

The Colt-Stratton Co,. Cole distributor, New York, is so far behind in deliveries that it was necessary to evolve some scheme which would make customers wait more patiently. The solution was a handsome hand-lettered album with two attractive pictures of the model similar to that purchased by the owner; brief specifications of the body fitments and the chassis are also given. One of these albums is presented to each new owner when he places his order. The album is valuable in the owner's eyes because it is something tangible; something he can show his visiting friends when they ask about his new car. Several unexpected sales have been made as a result. The cost is about $2.



Answer.—The method used to determine when a bearing is tight enough depends on conditions. In other words, if the cylinders are removed, you use one method and if you simply have removed the bottom of the crankcase, you will use another method.

If you simply take off the bottom of the crankcase, proceed as follows: Slightly loosen all the bearings, both main and connecting-rod and then adjust the bearings which require adjustment, one at a time. Suppose, for example, that you adjust No. 1 connecting-rod bearing first; take out sufficient shims so that the motor is a little bit difficult to crank when the connecting-rod bearing cap is tightened. Then loosen the adjustment by placing in another shim .001 in. thick. Test this adjustment by trying to shift the connecting-rod when the bearing cap is tight. If there is any appreciable play, it is possible that it is too loose.

Then loosen this cap and proceed to the next bearing in the manner just described.

If the cylinders are removed the connecting rod bearings should be just tight enough so that the piston will slowly drop to one side or the other after it has been brought to the vertical. While this method is simpler it is not quite as accurate as the one previously described.

Extreme care must be taken not to adjust the bearings too tightly on high-speed motors.

Singer to Double Output

NEW YORK, March 10—The Singer Motor Co. will move into new and larger premises within a few months, allowing the output to be raised to about 400 cars per annum, which is approximately double the present rate of production. The new site has not been chosen finally, but it is stated that it will be on Manhattan island, and probably not far from the company's present location in West End Avenue.

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Repairshop Shortcuts

From The Motor World Roadman

(No. 1092) TILTING ENGINE STAND

Engine repair is facilitated by the use of the tilting stand illustrated. It is cast iron throughout, and may be modified to suit the requirements of many makes of engines. In principle, it comprises semi-circular grooved tracks supported on uprights, and carrying the engine cradle by means of tongued end plates. This stand is best fitted to service station work, because several stands may be made from one set of patterns.—W. A. Terrgeon, Packard Service Station, Chicago.

(No. 1093) HUB CAP SPEED WRENCH

For every job there is some tool that promotes maximum efficiency, even in as simple a thing as the removal of a hub cap. The speed wrench illustrated was made for that purpose. The wrench part is steel pipe, heated and forged to a close fit to the hub cap. It is turned through a semi-universal jointed brace handle that permits quick action in the vertical position, and the application of a great force when swung down to the side.—Universal Motor Co., Ford Service, Omaha.

(No. 1094) CADILLAC CYLINDER CAP WRENCH

This special wrench was made to remove or replace the cylinder plug of the Cadillac. It consists of a hollow body, slotted in the manner shown, and provided with a short handle of solid stock. The slot in the body fits over the bridges in the plug, giving a leverage that permits the turning force to be applied.—Geo. F. Reim, Cadillac Co. of Omaha, Omaha.

(No. 1095) ADJUSTABLE SPANNER WRENCH

Ordinarily a spanner wrench will only fit one particular job. The spanner wrench illustrated is adjustable through a notched collar, so that the wrench may be used on many sizes of spanner nuts. The handle and pulling tooth is made in the same manner as on the standard spanner, with the exception that the handle is notched at the usual point of attachment of the brace tooth. A notched brace collar fits and slides over the notched handle, and may be locked in any required position.—LaVerne Avery, Auburn Service Station, Omaha, Neb.

(No. 1096) CRANKING STIFF ENGINES

New engines, or engines just overhauled are hard to crank, and will overload the starting system until some of the stiffness is removed. An Ingersoll-Rand air drill, fitted with a starting crank dog, in the place of a drill may be used for this preliminary cranking. The method of fitting the dog is illustrated, and it will be noted that the normal function of the drill is not harmed.—C. T. Silver, Chalmers, New York.

(No. 1097) JACKSHAFT ALIGNMENT

When replacing the gearbox on trucks having separate jackshaft brackets (as in the chain drive Mack), it is advisable to test the jackshaft and gearbox alignment. To do this, cut two disks of 1-64 in. galvanized iron to fit the outer bores of the jackshaft brackets, and drill a small hole through the center of each. These disks are placed in the outer bores of each bracket, and a fine thread passed through the drilled holes and the gearbox in the manner illustrated. Measurements from the outside of the bearings to the thread show when the alignment is perfect.—Edwin Purkess, 171 Independence Ave., Quincy, Mass.

(No. 1098) LATHE ANGLE PLATE

A face plate may be used as a makeshift angle plate for lathe work in the manner shown. Two angle iron brackets are made, and bolted to the lathe carriage, holding the face plate as illustrated. The face plate is then squared up by placing shims beneath the braces and the carriage. The work to be bored is then bolted to the face plate, and the boring bar passed through the centers in the usual manner.—Edwin Purkess, 171 Independence Ave., Quincy, Mass.

(No. 1099) OVERLAND ENGINE STAND

Though made for the Overland, this stand could readily be adapted to many makes of engines. The construction is simple, the stand being 2 in. angle iron bolted together as shown, and then securely braced with ½ in. round braces. The rear of the engine is hung on angle iron rests, and the front carried on a single plate as illustrated.—John D. Rommel, Overland-Louisville Co., Louisville, Ky.

(No. 1100) PORTABLE SERVICE LAMP

This portable service lamp was made both for night service in the shop, and for work on the road. A standard headlight, together with its bracket, is clamped to a pipe upright, bent as illustrated. This upright is fastened to a base that is an old rear wheel flange bolted to a brake drum. Current is derived either from direct connection with the storage battery or by plugging into the dash lamp circuit.—P. H. Wells, Chevrolet Service Station, St. Louis, Mo.

(No. 1101) WELDING TORCH LIGHTER

A means of electrically lighting the welding torch is shown. A box, holding several dry cells, and a spark coil, is mounted at the rear of the welding truck, and is connected to a spark plug attached to the top of the frame. The plug is thrown into operation by a push button connected into the battery circuit. This system of lighting is particularly adapted to short welding jobs.—Will Law, East End Garage, Steamboat Springs, Col.

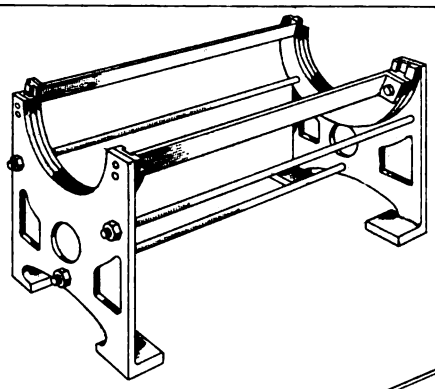
(No. 1102) SOCKET WRENCH RATCHET

In tight quarters, a ratchet is essential. The ratchet illustrated may be adapted to almost any socket wrench set, and is readily made. It consists of a hollow rod, squared out to fit the wrench handle and head, and joined to a similar rod through a ratchet toothed face. The two rods are held together by a plunger and spring. If the ratchet is made of soft steel it will be found necessary to case harden it throughout, as otherwise it would not stand up under the work.—Geo. F. Reim, Cadillac Co. of Omaha, Neb.

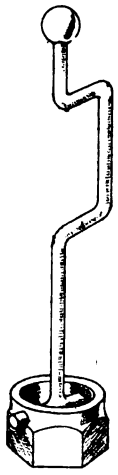
(No. 1103) AMMETER AND VOLTMETER CASE

By mounting the ammeter and voltmeter in a hinged wooden case, the instruments are protected from injury, and may be most readily used. The instruments are first flush-mounted on a board, and their terminals connected with corresponding binding posts at the side of the case. Lead wires are taken from these binding posts, and when not in use may be stored in the top of the box.—Marrion Williams, Warren M. Shallcross Co. (Hupmobile), Louisville, Ky.

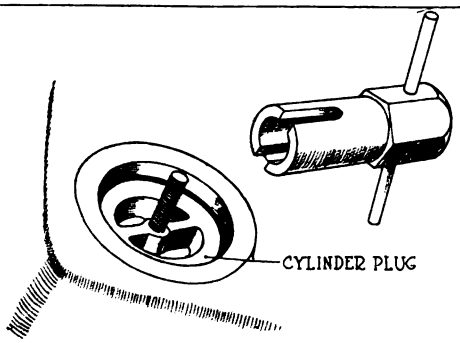
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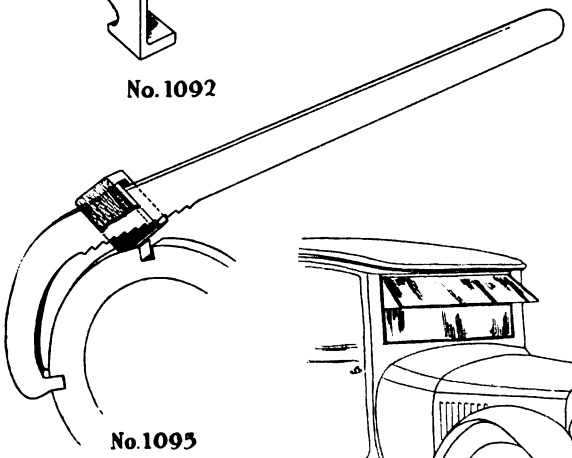
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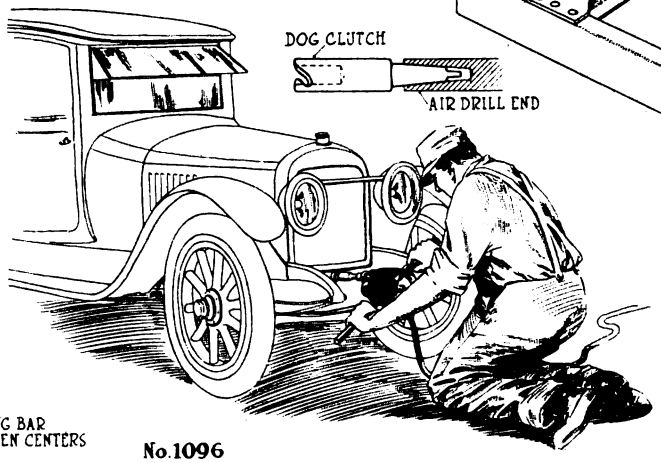
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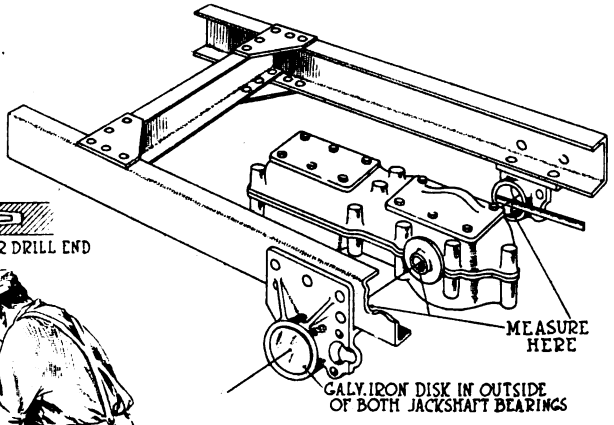
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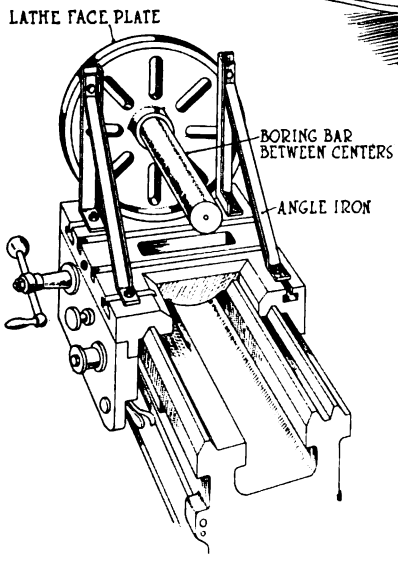
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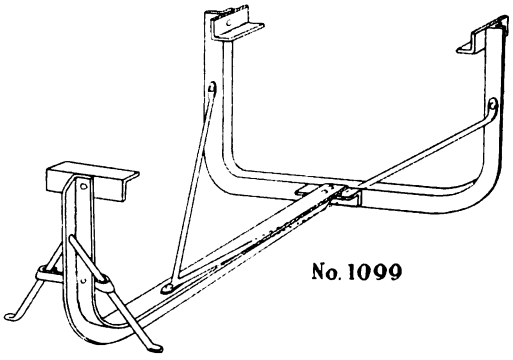
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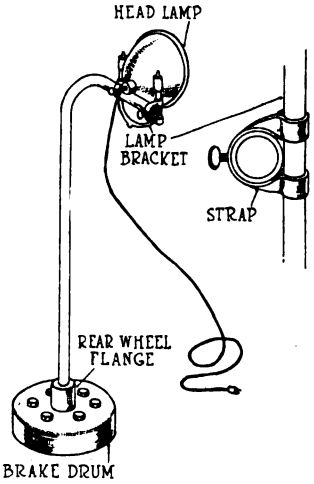
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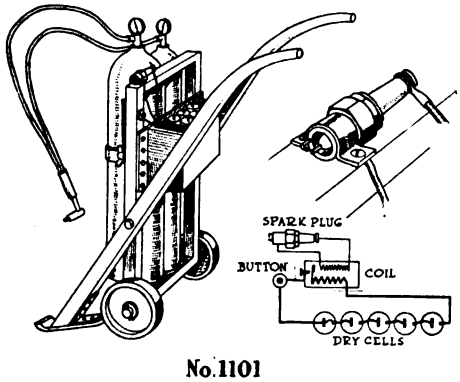
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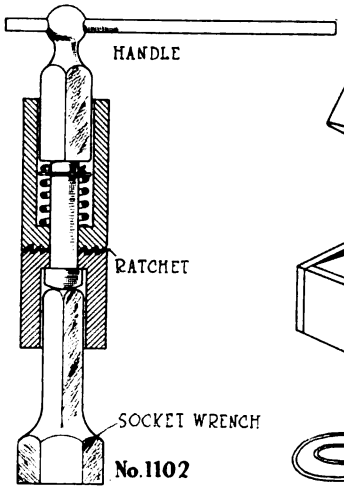
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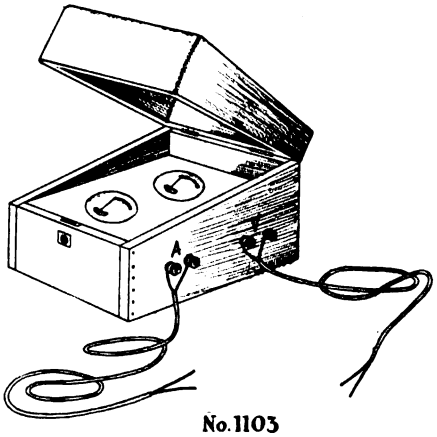
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Flexibility in Five U. S. Trucks

Floating Suspension of Powerplant on Subframe and Flexible Frame Construction Are Features.



New 3-ton worm drive model

Models Range from 2 to 5 tons — Gears Always in Mesh — Both Worm and Chain Drive.

UNITED States Motor trucks are made in five models with capacities ranging from 4000 to 10,000 lb. They are distinguished particularly by the floating suspension of the powerplant and by the adaptation of flexible rather than rigid construction. There are two chain driven trucks of 2½ and 3½-ton capacity and three worm-drives of 2½, 3½ and 5-ton capacity.

The entire power system floats inside the chassis frame and, regardless of the twisting and distortion, a perfect alignment of the propeller shaft is maintained. This is secured by carrying the engine on a subframe mounted on the main frame in front at two points, where it is supported by spiral coiled springs. The rear end of the powerplant is held by a ball and socket joint which permits free movement in any direction.

The purpose of this flexible connection is to eliminate breakage of the crankcase supporting arm and to eliminate binding, due to variations in frame alignment caused by deep holes and ruts.

Other features include a special type of gearbox in which the gears are always in mesh, and when running in high gear on the worm drives, a solid shaft is given from the engine to the rear axle. This is accomplished by the use of dog clutches. Another unique feature is the building of the control and brake levers in unit with the seamless steel gasoline tank and the steel cradle on which it rests.

Construction Not Radical

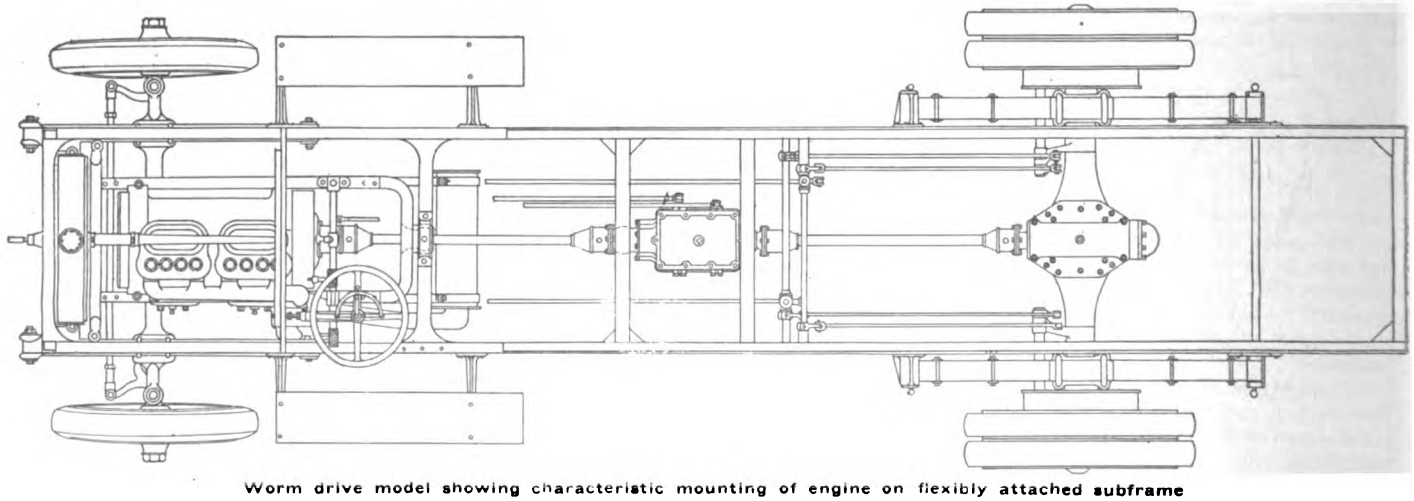
The engine is conventional, being a four-cylinder, L-head type, lubricated by a combination of force feed and splash, with a Duplex magneto combined with dry cells for ignition, and cooling by pump circulation, with a horizontal square tubular core radiator. This is carried in a steel cradle which is supported and cushioned upon coil springs. Additional cushioning is secured by a lining of anti-friction cotton webbing. This also prevents any part of the outer brass radiator shell coming in contact with the metal supports. An automatic governor operates in connection with the throttle.

There is an engine of different size for each truck so that the power supply may be strictly adjusted to the needs of the load. On the 2½-ton models, which are known as E and H, the engine is 4⅛ x 5¼, giving an S. A. E. rating of 27.2, governed to attain a maximum speed of 1160 r.p.m. At 1500 r.p.m., 40 hp. is developed on the block. On the models D and H, rated at 3½ tons, the engine is 4½ x 5½, giving an S. A. E. rating of 32.4, with the speed governed at 1090 r.p.m. with the maximum speed at 1500, at which speed 47 hp. is developed. On the 5-ton model K the engine is 4¾ x 6¾, giving an S. A. E. rating of 36.1 with maximum speed at 900 r.p.m. The motor at 1500 r.p.m. will develop 52 hp.

In the drive shaft between the engine and the gearbox there are two universals. The gearbox is amidship and is swung from two supports to the frame cross members.

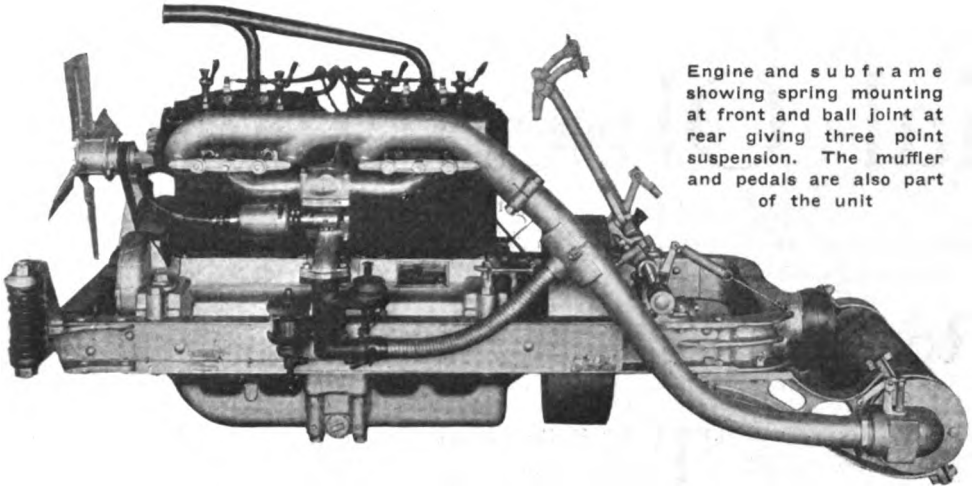
Few Differences in Construction

The line is similar as far back as the gearbox. Beyond here the worm-drive



Worm drive model showing characteristic mounting of engine on flexibly attached subframe

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Engine and subframe showing spring mounting at front and ball joint at rear giving three point suspension. The muffler and pedals are also part of the unit

and the chain-drive differ. Model E is the 2½-ton chain drive and Model H is the worm-drive truck with the same capacity. Model D is the 3½-ton chain-drive, and Model J is the corresponding worm-drive truck. The Model K is the 5-ton truck, having worm drive.

Neither radius nor torsion rods are used. The drive is a Hotchkiss type with both torque and propulsion taken through the springs. The object of this is to reduce the unsprung weight and at the same time to relieve the clutch, transmission, universal joints and worm from shock. Springs are silico-manganese steel.

In the chain drive models the differential is in the same case with the gearbox. The rear axle is a solid bar of heat-treated vanadium steel.

The entire rear system in these models is suspended from the frame at three points on ball and socket joints. In addition to the semi-elliptic springs there is a third spring hung cross-wise of the frame and free at the ends in the chain-drive models.

80 Per Cent of Load on Rear Axle

One of the points which has been observed particularly in the entire line is to secure the most efficient traction. Eighty per cent of the load is carried over the rear axle thus permitting the full power of the engine to be transmitted through the wheels even under disadvantageous conditions.

Various types of bodies are adaptable to the chassis, and a special point is made of the U. S. hydraulic hoist dump bodies which can be mounted on this chassis. These are steel with a hydraulic hoist dumping mechanism. The load can be dumped by two or three quick movements of the driver's hand which starts the mechanism of the hydraulic hoist and trips the lever controlling the tail gate on the body. The body can be allowed to be returned to its normal position on the truck while the truck is on its way.

On trucks for use in road work this dump equipment is supplemented by a special catch for the tail gate which allows it to open only a certain number of inches, when desired, and holds it firmly in that position.

The dumping mechanism takes its power from the propeller shaft. When it is desired to dump the load the gears are thrown into neutral. A dog clutch is then closed which brings into play a chain sprocket immediately under the dumping mechanism.

A chain from this sprocket connects with another one above which operates an oil pump. This pump draws oil from the top of the cylindrical column and forces it in at the bottom. The oil pressure slowly forces a large plunger inside the column upward. As it rises the front end of the hinged body is lifted by means of two cables working on two steel pulleys so that the load runs out of the rear end.

To bring the body down the pump is simply reversed. A by-pass is provided so that in case the pump is not stopped the oil pressure would do no harm.

Standardized Ohio Model at $2,380

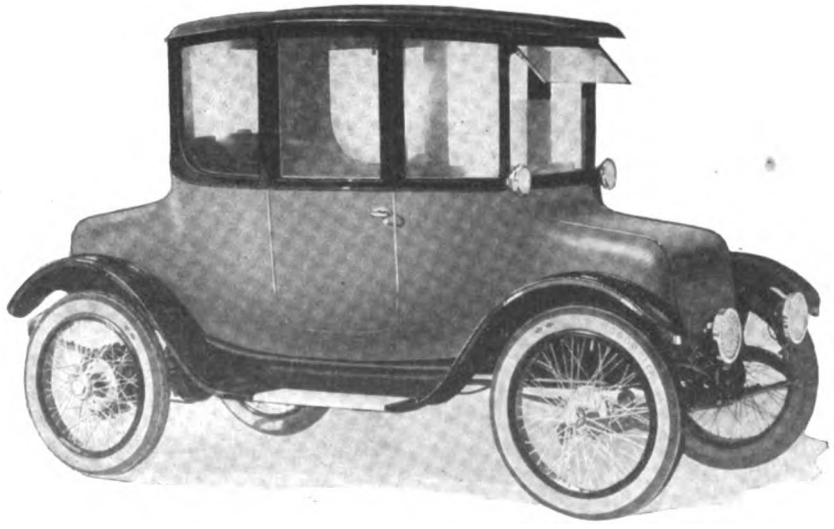
Motor Suspended on Semi-elliptic Springs—Color, Wheel and Tire Options

THE Ohio Electric Car Co., Toledo, publicly displayed its new model 44 car for the first time at the Boston show last week. This is an attractive coupe model which differs from the models 43 and 66 in that it is a stock car throughout whereas the others are custom built. Model 44 is built on exactly the same chassis as the others, the only difference being in the body. The price is $2,380.

The chassis incorporates all the features that have made the Ohio distinctive, foremost among which are the suspension of the motor on semi-elliptic springs on the chassis frame and the use of magnetic control. The control has been somewhat improved by the provision of a removable plate which permits access to the contacts for cleaning, etc.

Whereas the two older models may be finished in almost any color and upholstery combination at the option of the purchaser, but three choices are given with the model 44. The body may be finished in green, grey or blue with upholstery to match. Wheels are either wire or wood at the option of the purchaser and tires may be either 33 x 4½ Goodrich Silvertown cord or Motz cushion.

There is a further option in the speed capabilities of the car. It may be fitted with batteries which will give a maximum speed of 28 m.p.h., or batteries which will give a maximum of 20 m.p.h. Standard equipment is 40 cells of 15-plate Philadelphia. The wheelbase is 103 inches.



It is a standard design except that it may be had in green, gray or blue with upholstery to match; wheels may be wood or wire; tires Silvertown cord or Motz cushion

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Editorial Observation

Boost Good Roads

SPRING deliveries depend upon good roads. Spring business depends upon deliveries. And so it follows that it is up to the dealer and the garageman to get out and make a two-fisted fight for good roads.

All over the country dealers have been waiting for the roads to open every year for years. Last year many of them dusted their cars in warehouses and salesrooms and garages for months before they could make deliveries: and this despite the fact that the cars already were sold and deposits received. This year many of them will go through the same procedure, forgetting they have been through it every other year.

For the most part the individual States are doing their share in building roads. In practically every State there is a system of State roads and in many instances these are properly kept in repair. So there is little to complain of here.

It is the connecting roads that give the trouble; these roads are right up to those who live in the communities they connect and to those who use them or hope to use them.

The State won't build these roads—at least for years to come, in all likelihood. In the meantime it is up to the dealer and garageman to start the ball rolling toward their improvement for he is the one who will most directly benefit. Given good connecting roads between the main highways, the bug-a-boo of late spring deliveries will be largely done away with.

Get out the King drags. Drag the roads NOW. Drag them before they become quagmires of mud. A dragged road sheds the water and it does not sink in. Get the car owners to drag the roads!

Your Daily Paper

THE daily newspaper is not printed for amusement, for the amusement of those who read it. It is a business proposition from start to finish. And it is of value to those who read it in direct proportion to the amount of business-building knowledge they get out of it. This applies with equal force to the great papers published in the big trade centers and to the little country daily.

Intelligent reading will bring business-building knowledge from them all. From the war news we get information which keeps us posted on the doings of the world, broadens our minds and makes it possible for us to talk with understanding. From the police court news we get information on the errors of others which give us valuable experience and point out pitfalls which may be waiting for us. From the woman's page we get advance information on spring styles which helps us chose the colors for the new car the doctor's wife is going to buy this spring.

From the financial page we get statistics which give us vision to look into the future and forecast the trend of human events. Here, too, we get inspiration and encouragement.

From the general news we get hosts of high-lights, many of which can be turned directly into sales leads. Does a man wreck his car, he immediately becomes a prospect for a new one—or for a repair job. Does a man "make a killing," in the vernacular of Wall Street, he is a prospect for a new car. A fashionable wedding should bring up the thought of selling a new town car. A death may bring home the need for filling a space in your garage with another car.

This is the kind of business-building information that lurks in the columns of the daily paper. Intelligent reading will turn this information into business.

Have a Little Garden

BEAUTY always attracts. Flowers, green grass and shade are alluring to the tired tourist.

Why not have a little garden this spring, a little garden at the door to your garage? It won't cost much and it will pay handsomely.

The unsightly clay around the entrance can be transformed into a beauty spot. Spade the earth over, rake it, sow grass seed. In the center leave a little space and put in some pansies. They're cheap and they last a long time.

Such a garden will make your garage different. It will give an appeal you could not get any other way. Also, it will help keep the place clean by keeping the dust down.

Why not have a little garden?

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HIS BUSINESS CHARTED

Editor Motor World:—I was attracted by your idea for charting garage business as I have been doing this for the past three years. I am enclosing our chart for 1916. You can't help but notice our slump in winter, it is due mainly to the fact that we are located in a seashore resort. Then again there are two reasons for not going after the winter trade as strong as you have suggested in your paper. Experienced mechanics are hard to get and collections are very slow. I read Motor World regularly and recently have started saving each issue for future reference regarding short cuts, etc., about repair work.—A. R. Fogg, Ocean City, N. J.

P. S.—It is interesting to note that our chart has the same rise and fall as yours with the exception of one month.

Letters From MOTOR WORLD Readers

Auto Parts Reorganized

CHICAGO, March 2—The Auto Parts Co., Chicago, has been reorganized and new capital brought in. The new list of officers includes: A. H. Skogland, president; F. D. Symonds, first vice-president; J. B. Couleur, second vice-president; H. W. Binnie, treasurer; A. C. Johnson, secretary; G. G. Schoneberger, general manager.

Oppose Rhode Island Law

PROVIDENCE, R. I., March 2—New England motorists are organizing opposition to a proposed law in the Rhode Island legislature which would triple the tax on motor cars. The act also would triple the tax on trucks up to 3 tons with higher rates for heavier vehicles.

Palmer Re-enters Tires

CHICAGO, March 5—John F. Palmer, Riverside, Ill., inventor of the cord idea in pneumatic tires, has organized a company for the manufacture of his latest development in this type of tire. The factory is at St. Joseph, Mich., and has 70,000 sq. ft. The concern is called the Palmer Tire & Rubber Co., and will manufacture the Palmer flat, cable, cord tire, a new development of the cord construction. A new tube of Palmer design also will be manufactured. The company is capitalized at $500,000 and the officers are: J. F. Palmer, president; C. W. Bully, Chicago, vice-president; W. E. Bryan, Chicago, secretary; Marshall D. Wilbur, treasurer. G. H. Bird, of the Bird Sykes Co., Paige distributers, Chicago, is manager of salesmen. G. W. Bully was formerly president of the Mercury Mfg. Co., Chicago and recently resigned from that company to take charge of the manufacturing department of the new factory.

Big Gain in U. S. Rubber Sales

NEW YORK, March 6—The United States Rubber Co. reports gross sales in 1916 amounting to $126,759,000, a gain of $33,898,000, or 36 per cent over the preceding year. Operating profits were $15,796,389, net income $10,398,195, total dividends $4,955,082, surplus on the common stock $5,443,112 at the end of Dec. 31, 1916, total surplus $28,479,134. The net profits, interest charges deducted, were $11,226,000. The total assets amount to $222,366,569.

Firestone Adds $5,000,000 Stock.

AKRON, March 3—The Firestone Tire & Rubber Co. is issuing $5,000,000 worth of 6 per cent preferred stock, making a total capitalization of $10,000,000 with 6 per cent preferred with a par value of $100 and 300,000 shares of common stock with no par value.

Elkirk to Build in Toledo

TOLEDO, OHIO, Mar. 1—The Elkirk Machine Co., incorporated yesterday for $20,000, backed by Robert L. Ellery and Robert M. Ellery, of the Toledo Drill & Tool Co. and the Toledo Tap & Die Co., will erect a large factory building here to manufacture special machinery.

Denneen to Build Factory

CLEVELAND, OHIO, Mar. 2—The Denneen Motor Co., of this city, has purchased 19 acres of land upon which it will erect a new factory. The company has just introduced a new three-quarter ton truck, and in the near future will announce 2 others to make its line complete.

Car Theft Felony in Minnesota

ST. PAUL, Mar. 3—It is a felony in Minnesota to steal an automobile, according to a recent act of the legislature. The punishment is not less than 2 years. Having possession of another person's automobile without consent of the owner is prima facie evidence of guilt, regardless of intent.

Fisk Earns Over $1,500.000

CHICOPEE FALLS, MASS., March 1—Earnings of $1,741,704 were made by the Fisk Rubber Co. for the year ended Dec. 31 last. The company paid out in dividends $448,000, which, after being paid, left a surplus of $1,875,442, an increase from $1,246,394. Total sales for the year were $19,457,789.

The profit and loss account as of Dec. 31, 1916, shows: Net profits after deducting manufacturing costs, depreciation and interest on borrowed money, $1,836,830; less unusual expenses absorbed, $95,125; total, $1,741,705; surplus balance Dec. 31, 1915, $1,246,394, making the total $2,988,099. Total deductions amounted to $1,112,657, leaving a surplus balance Dec. 31, 1916, of $1,875,442.

The balance sheet as of Dec. 31 last shows: Capital assets, $13,876,308; investments, $404,342; current assets, $13,255,624; deferred charges, $260,478; total assets, $27,796,753.

Capital stock outstanding, $21,900,000; current liabilities, $2,874,543; reserve accounts, $171,768; surplus appropriated for retirement first preferred stock, $975,000; surplus for attached statement, $1,875,442; total liabilities, $27,796,753.

The officers and directors were reelected, except J. D. Anderson, who is a new addition to the board of directors.

Hood to Distribute Detroit Lock

DETROIT, Mar. 3—Wallace C. Hood Service Bureau has been put in charge of the entire distribution of the Detroit cartridge lock, manufactured by the Detroit Motor Lock Co.

San Joaquin Studies Minneapolis

STOCKTON, CAL., Mar. 3—Special attention to the Minneapolis show story and pictures as shown in Motor World for Feb. 14 has been urged upon the exhibitors in the second annual show of the San Joaquin Auto Trades Assn. to be held April 4 by Manager Cohn. He called attention to this story in notifying the members of the drawings for space at the show last week.

Oakland Wins Masquerade Prize

SAUK CITY, WIS., Mar. 1—First class advertising was achieved by the Up-to-Date Auto & Supply Co., Oakland distributer, by the novel method of sending several delegates in costume to a local masquerade dance. The delegation took first prize.

Wafle Wins Semmes Sales Race

WASHINGTON, D. C., Mar. 5—R. N. Wafle, Dodge salesman, came in first in the winter handicap sales contest of the Semmes Motor Co. which ended Feb. 28. The company handles Hudson and Dodge cars, Wilcox and Vim commercial vehicles. The contest led to an increase of 40 per cent in sales over the same months last year.

Tires from Oklahoma

FORT SMITH, ARK., March 1—The Besaw Rubber Co.'s Southwestern tire plant will be located in Ardmore, Okla. This city has donated a 5-acre tract to the company and construction of the plant will start as soon as material can be had. The concern will be known as the Ardmore-Akron Tire & Rubber Co., with J. C. Harmony president and Charles Besaw vice-president and general manager.

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The RETAIL NEWS.

EAST

The United Auto Sales Co., Studebaker distributer, Baltimore, will move into a new home, East Mt. Royal Avenue, adjoining Studebaker Park. Theodore E. Starus, president of the company, gave the square its name. The new building is a three-story concrete structure and includes showrooms and service.

George W. Myers, conducting a vulcanizing and tire repairshop on South Cameron Street. Harrisburg, is erecting an addition to his tire shop. His present shop has a floor space of 5,000 sq. ft. and the new building will have an additional floor space of 8,000 sq. ft., giving him a total of 13,000 sq. ft. of space.

Harlan Stidham, James M. Simonds and Warren H. Simonds, the former of Wilmington and the two latter from Kent county, Md., have formed the Delmarvia Garage Co. & Tire Shop at 717 Shipley Street, Wilmington. They will do a general garage and accessory business. They have taken the agency for the Pullman.

The Hudson Sales Agency, Harrisburg, is now occupying its new quarters at 1137 Mulberry Street. Show room is on the first floor, with offices and stock room on the second.

John Katz, proprietor of the York Garage and Service Company, York, Pa., has purchased property at 149-155 West Market Street, and will erect modern, fireproof, one story brick garage.

The B. F. Goodrich Co. of Akron, O., will open a branch store in Altoona, Pa., this spring. The store will come under the jurisdiction of the Pittsburgh office of the company and will be in charge of J. B. McJunkin and F. A. Rogalsky.

The Central Automobile Tire Co. has opened a branch store at 15-17 Dorrance Street, Providence, R. I., where it will handle tires.

The Providence Auto Equipment, state distributer for Hood tires and monogram oils, is now located at the corner of Mathewson and Fountain Streets. Francis F. Kellogg is manager.

The Edwards & Lanphear Motor Car Co., 17-19 Snow Street, Providence, R. I., is now distributer for the Chevrolet and Tonford cars. Edwards and Lanphear were formerly branch managers for Dutee W. Flint, Ford distributer.

The Times Square Auto Supply Co. have opened a store at Fountain, Empire and Aborn Streets, Providence, R. I.

The Saxon Motor Co. of Providence, R. I., has been named state distributer for Troy trailers.

The H. Barcroft White Corp., Syracuse, N. Y., Chevrolet distributers, has established a branch office at Albany, with Royal W. Pohl as manager, to direct sales and distribution in Albany and Renssalaer Counties.

George A. Grappotte, Watertown, N. Y., has leased a store in the City Opera House Block on Arsenal Street for salesrooms.

The General Auto Sales Co., Watertown, N. Y., is the new firm name adopted by W. H. B. Smith and Harold W. Gallagher. Their show room and garage is located on King Street.

H. C. Whitney and C. W. Shaffer, Watertown, N. Y., have rented the store adjoining their old show room at 567 State Street. This gives doubled space for show rooms.

R. W. Butterfield, Watertown, N. Y., has rented the livery stable at 155 Arsenal Street for garage purposes.

The Pilot Motor Sales Co., Inc., 200 Central Park South, New York, has been organized to sell the Pilot in New York, Connecticut and New Jersey.

The Firestone Tire & Rubber Co., Syracuse, has moved from the Hiawatha Building on East Genesee Street to temporary quarters in the Rust Homestead, on the opposite side of the street, to remain there until the completion of their new building on East Genesee Street.

The Binghamton Motor Sales Co., Syracuse, Marmon and Velie dealer, has moved to the Hiawatha Building, where it will open salesrooms and a service station.

SOUTH

The Stockwell Motor Car Co., Nashville, Tenn., Cadillac distributor, has moved into a specially built salesroom at Fifteenth Avenue and Broadway.

The Ever-Ready Storage Battery Co., Atlanta, Ga., has been organized by J. M. Cochran and R. O. Brunner, the latter recently of the Miller Rubber Co. Salesroom and service station at 14 Houston Street.

Hal M. Harris, Atlanta, Ga., has succeeded C. L. Dupuy as local manager for the Selden trucks, as Dupuy becomes Southern manager.

Frank Morgan, Richmond, Va., has opened a garage with capacity for 75 cars at 605 West Broad Street.

The Atlantic Auto & Accessories Co., Richmond. Va., has opened new salesrooms for Velie cars at 808 West Broad Street.

The Blackwood Tire Co., Nashville, Tenn., is soon to move into a specially constructed building which will be equipped to supply tires, gasoline and air service and slight repairs in space opening on a main street. "Hurry On" (H. O.) Blackwood, is president and the Blackwood Auto Co. will be housed in another part of the same building. The present location is at 910-12 and 14-16 Broadway.

J. T. Blair Co., Nashville, Tenn., has opened a Permalite service station at 617 Commerce Street.

MIDDLE WEST

Smith Form-A-Truck Sales Company, Charlotte, N. C., has opened showrooms at 309 North Tryon Street. It is distributer for Smith Form-A-Trucks. Dr. George E. Dennis is manager.

Ed G. White, Statesville, N. C., has opened a new home for the sale of Smith Form-A-Trucks. He is distributer for that section.

Yount & Alexander, Raleigh, N. C., distributer for the Smith Form-A-Trucks, are opening a showroom and service station.

The Johnson Sales Co., Racine, Studebaker and Peerless dealer, is building a public garage, salesroom and service building at Fifth and Lake Streets, costing $12,000. Melville Johnson is general manager and W. J. Gorton is sales manager.

M. J. Scholey, Kenosha, Wis., has been appointed Kissel dealer for Kenosha county.

The Clintonville Motor Car Co., Clintonville, Wis., is featuring as part of its service to local and nearby motorists that it will attend to all of the details of furnishing motor car licenses upon payment merely of the fee required by the state, which is $5.00.

I. G. Harriman and S. S. Thompson, Milwaukee, who recently erected a $20,000 public garage and repairshop at 400 Farwell Avenue, have incorporated this division of their business as the Farwell Garage Co., with $5,000 capital.

The Milwaukee-Waukesha Delivery Co., 105 Twenty-sixth Street, Milwaukee, has broken ground for a fireproof combination garage and general storage and transfer warehouse on Twenty-seventh Street, near Grand Avenue, Milwaukee. It will be 50 x 125, 5 stories and basement, reinforced concrete with separate vaults for various articles and commodities. Henry P. Melius is president.

C. G. Starr & Co., Decatur, Ill., have purchased the H. Post garage building, corner of East Main and Franklin Streets, for $14,000. The structure is three stories and will be utilized as a Ford showroom and service station.

F. L. Klep & Kahn Auto Co's., new garage at Chicago and Jackson Streets, Joliet, Ill., was opened this week occupying a quarter of a block. Only concrete, brick and steel were used in the construction and the building is regarded as fireproof. There are but four supporting posts, leaving storage space for 100 cars. In addition to a sales agency, the company will do a general repair business and handle a complete line of supplies.

G. W. Greenleaf and C. W. Morris, Onstead, Mich., will conduct a garage business.

John Butts, Eaton Rapids, Mich., will build a garage and machine shop.

Arie Boer, Grand Rapids, Mich., is building a garage.

J. S. Davis, Marquette, Mich., will erect a new garage.

Earl Luck and Fred Bishop, Romeo, Mich., sold their garage to Henry Borusch.

The Central Tire & Repair Co., Columbus, has moved to new quarters at 181 East Gay Street. It is dealer for Lancaster tires.

The Service Auto Co., Newark, O., is the name of a new concern organized to take over the agency for the Reo. Homer Allison and C. T. Stevens constitute the firm.

J. J. Aldrich, Columbus, O., dealer in used cars, has moved into larger quarters at 170 North Fourth Street.

SOUTHWEST

Austin Motor Co., Houston, Tex., has changed its name to Lipper Motor Car Co.

I. S. Grindstaff and W. F. Sears, Haskell, Tex., have bought the Marion Garage. The name of the garage will be changed to the G. & S. Garage.

The Jones Motor Co., Hartshorne, Okla., Ford dealer, will open a branch here within the next few days.

O. B. Rogers, Palestine, Tex., has let the contract for his Ford garage.

Sparks Bros., Waco, Tex., are erecting a garage.

George H. Bird, Dallas, Tex., will erect a three-story concrete automobile storage and supply house to accommodate 200 automobiles.

The White Motor Car Co., Dallas, Tex., has moved into new quarters at Ervey and Lear Streets. O. C. Van Slyke is manager.

H. E. Hoover, Canadian, Tex., will erect a brick garage.

C. C. and C. A. Wise and C. S. Moad, Clinton, Okla., are building a garage.

Watson & Black, Cloud Chief, Okla., are now located in the old garage building and prepared to do repairs.

Cullen & Caswell, Austin, owners of a garage and automobile repair and supply station at 206 East Fifth Street, are having the building at 206-8-10 East Eight Street remodeled.

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C. R. Dickhut and Walter Proudfoot, Scott City, Kan., have bought the automobile business of John and Earl Newsom.

C. E. Roe, Ringling, Okla., in partnership with Roy Folsom and J. M. Jones, has purchased the C. A. Reed Garage.

G. L. Wigton, Tulsa, Okla., is in charge of the new two-story building of the Carnation Auto Sales Co.

Whiteaker & Surry, Hardland, Mo., has bought the garage of J. J. Knaack.

O. F. Deal, Houstonia, Mo., has formed a partnership with W. F. Charles and will open a garage.

D. N. Danielson, Holden, Mo., Ford dealer, has bought the concrete block adjoining the corner of Second and Olive Streets, and will enlarge it for a garage.

F. R. Snider, Lees Summit, Mo., will erect a garage.

W. E. McKinney, Okemah, Okla., is erecting a new double two-story building, the ground floor of which will be used as a sales and display room for Ford cars.

Col. T. M. Chinn, Mayview, Mo., is building a garage.

John L. Gregory and Will H. Culver, Plattsburg, Mo., will build a garage to house 40 cars.

J. R. McAllister, Sedalia, Mo., will convert his livery stable into a garage.

Kalenbach & Thompson, Tuscumbia, Mo., will erect a garage.

The Weston Auto Co., Weston, Mo., will erect a two-story garage.

Herman Bradensteiner, Westboro, Mo., has bought the interest of C. W. Sawyer in the Westboro Auto Co.

The Arnold Automobile Co., Wichita, Kan., has been incorporated with a capital of $50,000, by M. L. Arnold, R. E. Arnold and S. Arnold, all of Wichita and all one share.

The Reichel Motor Co., Macon, Mo., was incorporated with a capital stock of $40,000, by Theo. Reichel, D. W. Acuff, J. W. Hatton.

The St. Louis Automobile Supply Co., St. Louis, has been incorporated with a capital stock of $2,000, by H. F. Schweighoefer, Louis Schweighoefer and Stanton Fitzgerald, all of St. Louis.

The Marsh Motor Supply Co., Muskogee, Okla., has been incorporated with a capital stock of $15,000, by W. Ralph Marsh, J. L. J. Graffenreid, and William H. Davis, all of Muskogee.

J. W. Newell, Topeka, Kan., will erect a new $10,000 sales building and garage.

J. B. Beever, Edmund, Kan., will build an automobile salesroom.

The Har-Mar Garage, Wellington, Kan., will be opened shortly.

M. H. Rudolph, Wichita, Kan., is building a $7,000 addition, one-story, for the Hudson Sales Co., for repair, paint and workshop.

Gene Higley, Atchison, Kan., has bought the Arthur Higley interest of the Davis & Higley Garage.

C. B. Jones, Columbus, Kan., Ford dealer, has opened a garage.

Fred Prymek, Cuba, Kan., has opened a garage.

A. J. Nelson, Lyons, Kan., has purchased a garage and shop.

The Ford Car Co., Harveyville, Kan., with Jos. McClure in charge, has opened a garage and repairshop.

D. F. Oyer, Marion, Kan., has sold his interest in the Tire Shop to Richard Rosenfelt and is now with the Stout Motor Co.

Earl Willard, Morrill, Kan., is erecting a garage.

Cap. Miller, Sabetha, Kan., is building a garage.

Jake Strahm, Berwick Kan., is erecting a garage.

Harry Nessley, Mulvane, Kan., Ford dealer, will erect a garage and salesroom.

C. M. Brach, Otis, Kan., will build an addition to his garage.

J. M. Throckmorton, Wichita, Kan., has purchased a half interest in the Briscoe Automobile Co.

E. M. Cason, Chaffee, Mo., Overland dealer, will open a garage.

Perry C. Houchins, Madison, Mo., will open a repairshop.

The Portageville Motor Co., Portageville, Mo., has opened a garage.

Aleck S. Clark and D. B. Houston, St. Joseph, Mo., have bought the Diamond Motor Co., with the exception of a 10 per cent interest, retained by S. R. Farmer. The company will move into new quarters.

The Bray Brothers, Waverly, Mo., have bought the garage of W. M. Miller.

The Weston Auto Co., Weston, Mo., will erect a two story garage.

J. Armstrong & Son, Sapulpa, Okla., have purchased the Creek Auto Co. from Cuno & Son.

M. A. Vance, Fairbury, Neb., has opened a repairshop.

B. W. Roe, Stamford, Neb., will build a garage and repairshop in the spring.

The Automobile Supply Co., Little Rock, Ark., has opened an electrical repairshop in connection with its store.

Raymond Smith, Eureka, Kan., has bought and taken charge of the W. L. Shively Garage.

Ed Hart, Herington, Kan., has bought lots and is erecting a brick garage.

The Irving Machinery Co., Irving, Kan., has been organized by E. W. Dexter, already in the motor car business, and S. R. Fairbank and G. F. Filley; the company will erect a building for their automobile, accessory and implement business.

C. H. Rodgers and W. N. Cross, Kingman, Kan., have opened a garage, and will be Maxwell dealers, their sons, R. M. Rodgers and G. W. Cross, being active; there will be a repairshop.

Curtis & Webster, Canton, Kan., have rented quarters and opened a garage.

George W. Ramey and Paul Garrison, Ottawa, Kan., have opened a garage, with repairshop and welding departments.

Bascom Cassat, Lamar, Mo., will open a garage.

N. Gummerson, Nevada, Mo., has traded his farm of 240 acres, to J. E. Clark for the garage building occupied by Moss & Ulner.

Paul Lawson, Rockport, Mo., has leased the Potschke & Freihofer garage.

The Moerschell Electric & Auto Co., St. Louis, has added Rayfield carburetors to the lines handled. An official Rayfield service station will be maintained at 244 Locust street.

A. J. Vogel, Cape Girardeau, Mo., famous as the man who sold the first Model T. Ford in southeast Missouri, has joined the Mound City Buggy and Auto Co. as traveler for the Allen and Jackson cars in southern Missouri.

The Moon Motor Co., St. Louis, has leased showrooms at 3313-15 Locust street which are to be built at once. These rooms will be for the local outlet of the Moon Company.

Harding & Davis, Lone Wolf., Okla., are successors to the Davis & Graves garage and automobile business.

C. J. Hayne Auto Co., Charles City, Iowa, will open a garage.

Charles Eckart, Lanham, Neb., is building a garage.

John W. Allen & Son, Arkadelphia, Ark., will erect a garage to cost about $8,000.

Judge J. N. Haymaker, Wichita, Kan., will erect a two-story garage to cost $15,000.

Wilbur Ellis, Lebo, Kan., s building a garage.

The South Side Garage, Linsay, Kan., is building an addition for a workroom.

F. W. Parrott, Clay Center, Kan., is building a garage.

The Kansas Motor Co., Independence, Kan., is open for business.

C. W. Lord Manhattan, Kan., is building a garage.

Earl Price, Marysville, Kan., will open a tire repair shop.

James Freeborn, Miltonvale, Kan., has sold his interest in the Miltonvale Garage to Mr. Lachemeir.

Earl Willard, Morrill, Kan., is building a garage.

L. H. Billings, Pittsburg, Kan., is building a garage and salesroom.

Joe Foster, Pratt, Kan., is building a garage.

T. E. Jones, Quincy, Kan., has enlarged his garage.

G. Van Valkenburgh, Blue Rapids, Kan., will erect a building on the lot north of its present garage, doubling its capacity.

Amos Abernath, Beloit, Kan., will erect a garage.

Bud Ball and C. C. Harrison, Colby, Kan., are erecting a garage.

The O. O. Crane Building, Dearing, Kan., will be used for a garage.

Herbert Wahaus, Easton, Kan., will remodel a building into a garage.

Haverfield & Stump, Hamlin, Kan., will open a garage.

Sinning Bros., Holton, Kan., are remodeling their garage.

L. A. Gorrell, Hoxie, Kan., is the new manager of the Hoxie Auto Co.

The Miller-Warden Auto Co., Garden City, Kan., will enlarge its building.

I. S. Tice, LaHarpe, Kan., has bought the LaHarpe Garage.

Ed Blanton, Durant, Okla., will erect a two-story brick building, the ground floor of which will be a garage.

Frank A. Flint, St. Louis, has been appointed manager of the commercial department of the Hudson-Phillips Motor Car Co., this city.

The Auto Salvage Co., Cincinnati, O., has leased quarters at 2883 Locust Street, St. Louis, for a branch in that city. The building is two stories. Thomas A. Handley, president, will move to St. Louis to take charge.

The Universal Tire Co., Little Rock, Ark., has opened at 809 Main Street to sell tires. H. Frankel is president.

The Little Rock Battery Co., Little Rock, Ark., has completed improvements on an adjoining building that doubles the service capacity.

The United States Auto Co., Little Rock, Ark., Oakland and Maxwell distributer, has obtained a lease on the showroom adjoining their present space at 1112 Main Street.

Brown & Holland, Little Rock, Ark., will handle the Westinghouse and Sims-Huff lines and will supply service.

NORTHWEST

Sander Bros., Owatonna, Minn., garage owners, have dissolved partnership, R. W. Sander continuing.

W. L. Seeley, Wolsey, S. D., bought the J. P. Anderson garage.

Asplund Bros., Minot, N. D., have opened a garage.

Johnson & Paulson, Badger, Minn., will enlarge their garage.

Charles Scholes, Wasta, S. D., sold his interest in the Wasta Garage to C. H. Honold.

Fred Pound, Taylor, N. D., will build a brick garage.

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Satterstrom & Newdell, North Branch, Minn., will build a garage.

Bemidji Auto Co., Bemidji, Minn., will enlarge its garage, 50 x 140, to cost $9,000.

Fred Perrin, Willow City, S. D., will build a garage.

Tony Potvin, Walker, Minn., has opened a garage.

Will Ott, Drummond, Mont., has completed his garage.

W. N. Redmon, Bonesteel, S. D., bought the Daniel Brodie stock of accessories and repair machinery.

McLaughlin & Stranger, Langdon, N. D., will build a $12,000 garage.

August Ebent, Jr., and Herman Koenig, Buffalo Lake, Minn., have bought the Jakobitz Bros. garage.

Hiram Powell, Benson, Minn., bought the L. H. McDaniel garage.

W. W. Harris and W. E. Thomas, Lake Crystal, Minn., have opened a garage.

J. A. Jacobson, Freeborn, Minn., bought the Louis Howser share in the Freeborn Motor Co. Garage.

J. L. Croskrey, Verndale, Minn., bought the J. J. Waterhouse garage and shop.

Kunkel & Louden, Kimball, Minn., have taken over the Campbell garage.

William Skow, Lamberton, Minn., bought an interest in the Samuel Skow garage.

E. M. Foerschler, Wilsall, Mont., has bought the Wilsall Garage.

Green & Konold, Clear Lake, S. D., is a new firm in the automobile and garage business.

John S. Fuson and Roy Juckett, Hot Springs, S. D., have reorganized the Hot Springs Motor Co.

F. J. Harding, White Sulphur Springs, Mont., wil open a garage.

Howard Douglas, Carlyle, Mont., will build a garage.

Barringer & Merchant, Conrad, Mont., Chevrolet and Oakland dealer, will open a garage and repair shop.

John Larson and C. S. Swanson, Donaldson, Minn., bought the C. J. Tvede garage.

L. O. Holmes and Arthur Mathwig, Owatonna, Minn., have formed a sales partnership. They will handle the Chandler and Hupmobile.

The White Taxicab Co., Duluth, has been incorporated at $50,000 by W. E. Greene, M. M. Forbes and L. E. Emerson.

The Twin Ports Automobile Supply Co., Duluth, has opened an accessory store at 216 East Superior Street. The firm is composed of Samuel Nindes and Fred Danieko.

Malmberg & Jacks, Thompson Falls., Mont., will erect a garage.

Oscar Baumann, Fort Yates, N. D., will erect a garage of concrete blocks.

The Western Sales Co., Bismarck, N. D., will open a service garage in the Northwest Hotel.

Charles Ulrich, Spring Brook, N. D., will open a garage on April 1.

The Cannon Motor Sales Co., Bismarck, N. D., has been formed by W. E. Cannon, who bought his partner's interest in Gross & Cannon.

Chipman & Hill, Granada, Minn., Granada Garage, have dissolved partnership.

J. P. Rice, Caledonia, Minn., will open a tire repairshop.

C. J. Pine, Deer Lodge, Mont., has taken a partner interest in the Deer Lodge Garage Co.

Nelson & Rud, Effington, S. D., garagemen, have dissolved partnership, Nelson continuing.

James Mitchell and Forest Smith, Nashua, Mont., will build a garage.

N. P. Hansen & Son, Willow City, N. D., will build a garage.

Jack Jones, Lake Crystal, Minn., has leased the W. W. Weller garage.

E. H. Adolphson and Wayne Potter, Springfield, Minn., have formed a partnership and will build a storage and service plant.

H. A. Yotter and T. A. Hauge, Glasgow, Mont., have formed a partnership to deal in automobiles and tractors.

William McGowan, Fergus Falls, Minn., will erect a two-story garage.

Joseph Keyes and C. C. Schweitzer, Moorehead, Minn., will reopen the Comstock garage.

Frank Fimon, Clarissa, Minn., has sold his garage and repair business to Ray Leseman and R. B. Mott of Bertha, Minn.

John Keyola, Virginia, Minn., has leased a building on Chestnut Street, to be opened as a garage.

Minneapolis—The Twin City Rubber Tire Co. has followed the lead and moved from old automobile row to a new building at 1125 Nicollet Avenue. It will conduct a Goodyear service station and carry Mohawk, G. & J. and Goodyear tires. H. C. Baker is manager.

Frank A. Heinzman, Washington, Ia., has bought a third interest in the White Way Garage on West Washington Street.

J. E. Mudgett, Lineville, Ia., has sold the Elk Garage to Fred Daily for $25,000.

John Peterson, Durant, Ia., has bought a site on the River-to-River Road for a garage, which he will build this spring.

Van Gorkum & Crouse, Hastings, Ia., will build a garage.

The Eldora Motor Co., Eldora, Ia., has been bought by George Elerding and C. E. Shallberg, who take possession March 1.

Joseph Slifsa, Waucoma, Ia., will open a garage.

P. H. Kelly, Larchwood, Ia., is building a home for his garage, which recently was destroyed by fire.

A. H. Tomlinson, Severy, Kan., has bought a building and will remodel it for a garage.

H. W. Mullarkey, Nora Springs, Ia., has taken over the A. C. Winterburn garage.

Shelley Bros., Guthrie Center, Ia., have opened the Metz garage.

Earl Friend, Brighton, Ia., has bought out the interest of his partner in the garage business of Friend & McGuire.

Harris Thornton, Grundy Center, Ia., will build a new garage.

Charles Van Patten, Holstein, Ia., is opening a new garage.

Tom Morris, Rossie, Ia., has bought the Runkle & Runkle garage.

Orris-Gentry Auto Co., Winterest, is building a new home.

Dunahoo & Webb, Maxwell, Ia., are opening a new garage.

A. O. Harney, Henderson, Ia., has bought two lots on which he will build a two-story garage this spring.

Steel & Summers, Imogene, Ia., is the name of a new garage and auto firm.

H. G. Lochmiller, Denison, Ia., will build a garage.

M. F. Bevans, Batavia, Ia., has bought out the interest of his partner in the garage formerly conducted by Bevans & Greeson.

Noel Kading and C. J. Paine, Anaconda, Mont., bought the Albee & Lail garage on Missouri Avenue.

August Hanson, Fargo, N. D., general agent for the territory for the J. I. Case T. M. Co., entertained salesmen from western Minnesota, North Dakota and Montana at a convention of three days. Salesmanager F. R. Washburn and his assistant, E. F. Johnson, were on hand from Racine.

The Pen Hallegon Co., St. Paul, of which W. J. Dean is a member, is to be incorporated at about $100,000. The company will rent space or build a factory to make an anti-freeze compound.

The Fargo Motor Sales Co., Fargo, Ford dealer in Fargo and eastern Cass county, has moved into a new three-story building on Roberts Street N. Between Fifth and Sixth Avenues. It has offices, salesrooms, parts department, garage and service station combined.

A. Upton and F. E. Martin, Minot, N. D., bought the F. J. Wells interest in the Minot Motor Sales Co.

The Snelling Auto Co., 708 Snelling Avenue, St. Paul, is erecting a one-story garage, to cost $10,000.

Belanger Bros. have opened a garage at 1904-1906 Central Avenue, Minneapolis.

The **Stearns Tire & Tube Co.**, St. Louis, is preparing to open a branch.

COAST

The Ellert Rubber Co., San Francisco, specializing in Goodrich tires, has leased the premises at 1307 Sutter Street for salesroom and vulcanizing plant.

The Auto Electric Specialty Co., San Francisco, organized by H. A. Brown, will distribute the Simms products in northern California, in addition to conducting a general service station for ignition, magneto and battery work at 128 Grove Street.

The Wolfe Lumber & Hardware Co., Nineteenth and Folsom Streets, San Francisco, have added a complete stock of automobile accessories and tires to their line.

The East Bay Motor Sales Co., Oakland, distributers of the Indiana Motor Truck, have removed to 2820 Broadway.

R. H. Hingston, Oakland, has purchased the business of C. L. Cummins, "The Ford Outfitter," at 458 Twentieth Street.

E. O. Johnstone, Portland, Ore., for the past nine years manager of Hughson & Merton wholesale accessory branch, has returned to the Portland field as factory representative of the American Chain Co., Bridgeport, Conn. His territory will embrace all Oregon, Washington and Montana together with Northern Idaho.

CANADA

The Canadian Auto Sales Co., Toronto, Ont., has taken over the entire building in which its showroom is located, and also the garage abutting it on Temperance Street.

The Automobile & Supply, Ltd., Toronto, Ont., Pierce-Arrow, Paige-Detroit and Dodge Bros. dealer, has moved to its new showrooms at 100 University Avenue, and garage at 249 Simcoe Street.

The United Automobile Tire Co., Ltd., Sussex, N. B., has incorporated with a capital of $98,000.

The Canadian Pneumatic Tool Co., Ltd., of Montreal, Can., has opened a showroom and garage at the corner of Richmond and Church Streets, Toronto, Ont., for the display of Little Giant trucks.

Ferguson & Higmon, Vancouver, B. C., have opened business at the Canada West Garage and taken the Ford agency.

The Northwest Auto Supply Co., Vancouver, B. C., will move on March 1 to 801 Georgia cor. Howe Street. A complete line of accessories and gasoline and oil will be carried.

W. A. Roberts, Vancouver, B. C., Franklin dealer, has opened display rooms at the corner of Howe and Pender Streets, formerly occupied by N. L. Tullis.

Dave Roberts, Vancouver, B. C., proprietor of the Central Garage, has taken over the repair department which was formerly run by Dave Sutherland.

Dave Sutherland, Vancouver, B. C., formerly of the Central Garage, has opened a repair shop on Homer Street.

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Roomy Show at Grand Rapids





Furniture City Event Sets Example in Spacious Display

GRAND RAPIDS, March 10 — Excellence rather than size was the feature of the Grand Rapids eighth annual automobile show held in the Klingman Building the week of Feb. 28. Careful attention to details made it one of the attractive events of the small show circuit. For example, every exhibit was in readiness before the doors opened, plenty of space was afforded each display, wistaria and smilax made the building cheerful, chairs were provided for the comfort of visitors, and the trucks and accessories received as fair treatment as the motor cars.

There was a paid attendance of about 22,000. Nearly 100 exhibitors were represented, and there was a special section devoted to motorcycles. The building affords 70,000 sq. ft. of floor space, but there were so many demands for space that the Paterson, Peerless and Elcar exhibits were held in nearby quarters.

Ray E. Becker, president of the Grand Rapids Automobile Business Men's Association, and Ernest T. Conlon, the association's secretary, with W. L Peiter, W. K. Philp, Carl P. Palmer and E. E. Neville, was the committee.





1. *Business is pleasure in Grand Rapids, hence the show building was decorated to look like the Mikado's palace.*

2. *Comfortable chairs and cheery rugs are more likely to make the prospect linger than the best Websterian arguments.*

3. *Trucks received respectful treatment at this show. Note the wide spacing, the palm decorations and wicker furniture.*

4. *Anything that's worth showing is worth showing well. These accessory displays benefit from the uncrowded arrangement.*

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A Department of

Better Mechanics

No. 14

Eliminating Compression Knock

By Adding Thick Gasket

A KNOCK caused by too high compression sounds like a carbon or advanced spark knock. The compression may be reduced by placing a thick gasket between cylinders and crank case.

1—Remove the cylinders.

2—Place the cylinders on a bench, and clean both the cylinder flange and engine base thoroughly.

3—From a sheet of tin, make a template, Fig. 1, which is an exact reproduction of the base of the cylinders, except that all the openings, such as piston and bolt holes, are about ⅛ in. larger than those in the cylinders. The template is used as a pattern for marking out and forming the cylinder raising gasket, and permits the gasket to be made without going to the cylinder each time to see if it is being made right. A copper-asbestos gasket does not have sufficient clearance to be used as a pattern.

4—Procure a sheet of red composition board ¼ in. thick.

5—Using the template as a pattern, scribe out the cylinder and bolt holes, and the outside form onto the red composition board.

6—Using a gasket cutting tool, as shown in Fig. 3, and a drill press, carefully cut out the piston holes. Make these ⅓ in. larger than the cylinder bore.

7—Drill the bolt holes slightly larger than the diameter of the bolts.

8—With a band saw, or key hole saw, cut the composition board to the outside shape of the pattern.

9—Remove all burred edges with a file.

10—Place the composition board onto the engine base, and bolt the cylinders in place, as shown in Fig. 2. Shellac should be used sparingly to prevent leaks.

By doing this the cylinders have been raised, giving a larger compression space and less compression. The result is that the compression knock disappears and the engine will pull much better.

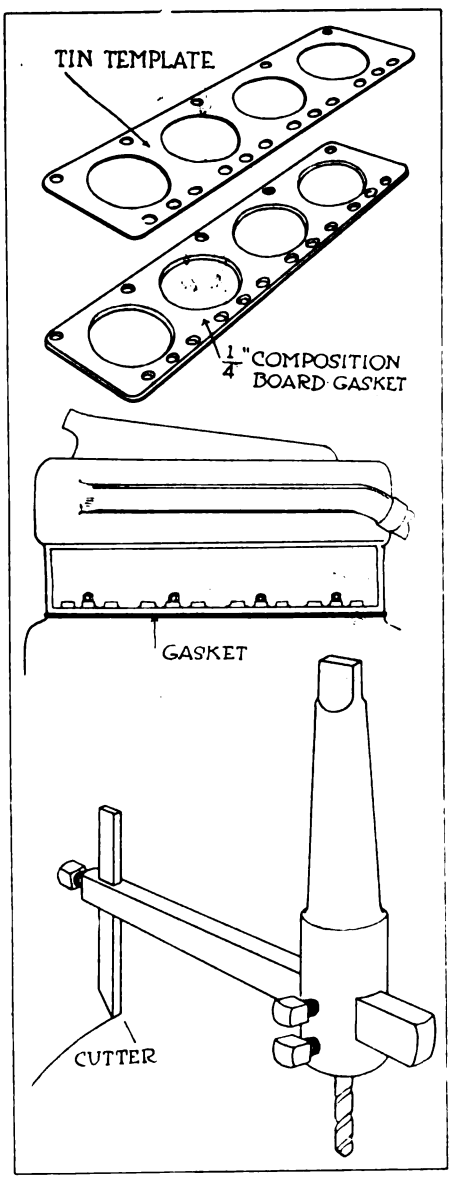


Fig. 1—Upper—Tin template which is used in making the composition gasket. Fig. 2—Middle—The gasket is placed between the cylinder block and the crankcase. Fig. 3—Gasket cutting tool

With some makes of engines this repair is a common one, particularly when the car is equipped with a heavy closed body. In such cases a better job may be done by making the thick gasket of cast iron. It is made in a similar manner, but must be planed or milled to a uniform thickness and smooth finish. Otherwise the cylinders will be thrown out of alignment or the joints will not be tight.

Camshaft Repair Kink

Northway Motor

THE impellor of the water circulating pump of this engine is direct-driven from an extension of the camshaft. Due to carelessness on the part of the driver, the cooling water is allowed to freeze, or some foreign material gets into the pump, causing it to stick.

When the engine is started, the impellor cannot turn, and as a result, the extension of the camshaft driving the impellor is twisted off, Fig. 4. The usual

Previous Articles

Subject	No.	Date of Issue
Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains	2	Dec. 20
Maxwell—Rear axle repairs	3	Dec. 27
Chevrolet—Clutch repairs	4	Jan. 3
Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Buick—Rear axle adjustment	8	Jan. 31
Chalmers—Valve and ignition timing	9	Feb. 7
Dodge—Brake adjustment—Push-rod care	10	Feb. 14
Studebaker—Torque arm repair—Push-rod care	11	Feb. 21
Cole—Adjustments of motor	12	Feb. 28
Paige—Oil level adjustments	13	Mar. 7

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method followed is to tear the engine down, and put in a new camshaft.

This is an expensive and unnecessary job, and the old camshaft may be made better than a new one in the following manner.

1—Remove the camshaft.

2—Place the camshaft in a lathe, catching the rear bearing in a chuck, and the front bearing is a steady-rest.

3—Carefully true the camshaft up.

4—Cut the pump drive shaft off square at the shoulder.

5—Spot a center in the end of the camshaft.

6—Drill a hole the exact size of the pump drive shaft into the end of the camshaft. This hole should go in as far as the front end of the front bearing.

7—Obtain a piece of cold rolled stock, just the size of the pump drive shaft, but about twice as long.

8—Make a tight fitting steel collar, shown at the right, and use it to aid in drilling the pump drive keyway.

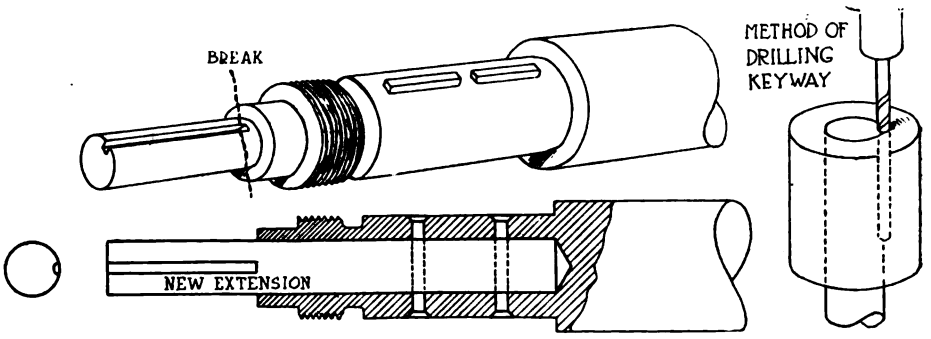


Fig. 4—Method of repairing water pump drive shaft on Northway motor without dismantling the motor

9—Force the new pump drive shaft into the hole drilled into the camshaft end.

10—Drill two ¼ in. holes through the camshaft end, and through the pump drive shaft as shown. Countersink the holes and rivet two cross rivets in place as shown.

11—Cut the end of the pump shaft off to the length of the former shaft.

The camshaft may now be placed in the engine. In case the impellor again becomes stuck, or frozen, the only effect will be to shear the rivets. These act as a safety link, and may be readily replaced.

TRANSFORMER FOR TESTING ARMATURES

Defective Armature Coils Easily Located

SHORT circuits, open circuits or grounds may be quickly located in an armature by the use of an armature testing transformer, Fig. 7.

An old lighting transformer from the electric light company was procured. After tearing it down, and removing the old wire, which was burned and short circuited, the laminated sheet metal core was bolted together. The ends were then cut at a 45-deg. angle, leaving a U-shaped core.

Steel cheek plates, for the winding, were then slipped in place, after which the core and cheek plates were insulated with paraffine soaked paper. The transformer was then ready for winding.

Number 11 magnet wire was used in this case, and was wound on tightly by hand. Each layer was separated from the others by a thickness of parffined paper. The only rule followed in determining the number of windings was that the transformer should draw 7 amps. from a 110-volt alternating current line.

When it was found that enough wire had been wound on to cut the current down to 7 amps. the winding was stopped and the outside of the winding taped over.

The transformer was then mounted in an opening cut in the bench, Fig. 5. L-shaped brackets, caught beneath the lower core retaining bolts, were used to hold it to the bench. The ends of the winding were brought to a double throw switch that, in turn, was connected through 10-amp. fuses to a 110-volt alternating current line.

To test an armature is simple. The armature is placed in the upper legs of the transformer, as shown in Fig. 6, and the current turned on. Then the armature is slowly rotated with one hand and a hack saw blade held lightly over the top of the armature. The instant that a shorted coil comes beneath the blade, the blade will vibrate. This method of testing is best for large armatures and only for short circuits.

A test lamp, Fig. 5, may be used to test each armature coil in turn. It is a common 6-volt lamp, mounted on a suitable base, and provided with two feeler terminals. One of these is placed against each end of the armature coil being tested, while the armature is on the transformer, and the current turned on.

If the lamp burns bright the coil is all right. If the lamp burns dim a short circuit is indicated. When the lamp goes out it denotes an open coil.

In this manner each of the coils may be tested, the faulty coils determined, marked and repaired.

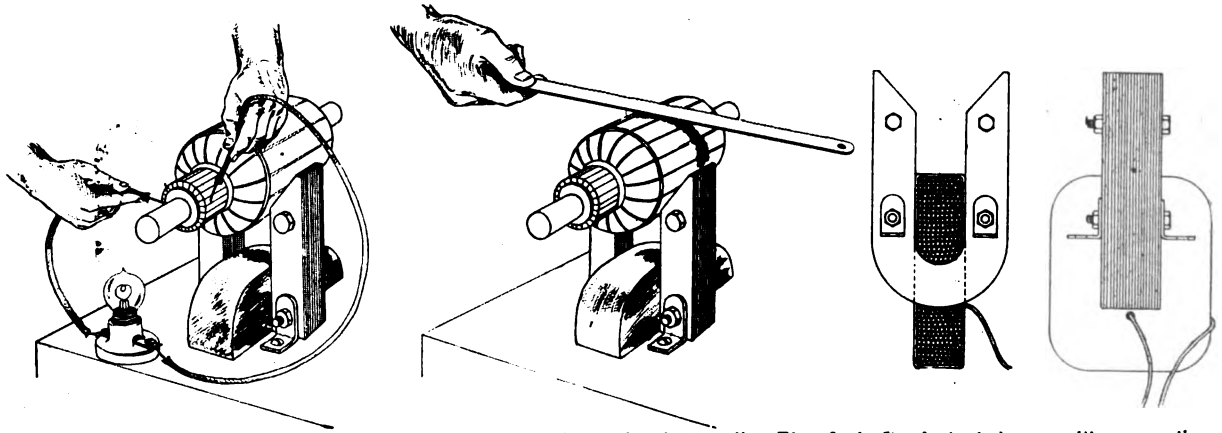


Fig. 5—Center—A hacksaw blade will vibrate over a short-circuited coil. Fig. 6—Left—A test lamp will grow dim on a shorted coil and will go out on an open coil. Fig. 7—Right—Transformer for testing armature windings

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Accessories

POSITIVE BRAZING PASTE

The advantages are that it repairs the broken metal all the way through, does not change the size of the part repaired, does not require brazing and welding, can be done at low cost, makes the joint stronger than it was originally and will braze steel to cast iron or any kind of iron. In applying the paste, rust streaks are removed and the pores are filled with the paste, which is well rubbed in. After clamping the work in position, heat is applied. When the iron is white hot an inch each side of the break, borax is applied and then spelter is rubbed fairly into the break. When the iron is cooled sufficiently and turned black the work may be taken from the clamp. — Ferro-Brazing Paste Co., 1423 Farragut Avenue, Chicago.

MAGIC RUBBER MEND

Magic Rubber Mend is a plastic substance for repairing tires or tubes without heat or acid. It is used with a cement and is suitable for any kind of a hole. Price, 1 lb. cans with cement, $4; motorist's size, $1. The latter makes from forty to sixty repairs, it is said. The method of application is to clean the surface with gasoline, rough it with sandpaper, the cement is applied and then a patch of rubber mend is formed by hand and placed over the aperture.—Eastern Rubber Mfg. Co., Philadelphia, Pa.

CORTEX DISK CLUTCH FACING

It is claimed that the coefficient of friction is higher than that for asbestos compounds, and that prolonged use does not cause glazing or make the material hard, and that there is no restriction in the supply of the materials. At the same time the cost is stated to be from one-half to one-third less than that of asbestos. The material is applied in exactly the same way as the ordinary rings for disk clutches, and the company is prepared to make facings interchangeable with asbestos facings for any dry disk clutch.—Hide, Leather & Belting Co., Indianapolis.

MUTTY TOP FABRIC

The new product is called DrydeK and is manufactured as DrydeK rubber and as DrydeK leather. It is a four-ply composition, very soft, pliable and easy to work and it is said to be permanently water-proof.—L. J. Mutty Co. of Boston, Mass.

OPTIMUS BODY POLISH

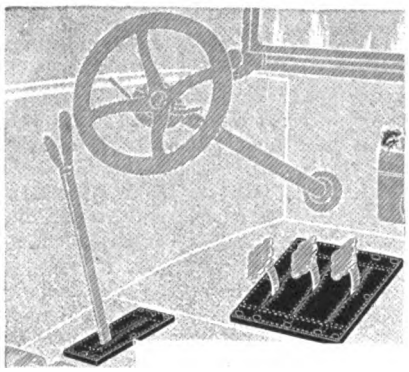
It removes dirt from the body and restores the original luster, it is said. Price, 1 pint, $1, enough for cleaning the average car twice.—Optimus Mfg. Co., 193 Hanover Street, Boston.

LIGHT-WEIGHT PISTONS

Aluminum alloy pistons are made for Reo, Dodge, Chalmers, Overland, White and many others. They are one-third the weight of cast iron and are made in standard and S. A. E. oversizes. A complete set of four for Fords costs $18. Increased speed, reduced wear and vibration will result.—Featherweight Piston Co., 11 Guyman Way, Pittsburgh, Pa.

PANVAR

A varnish which will make the car look like new, it is said. It is applied with unbleached cheesecloth, sprayer or brush and dries in 6 or 8 hours, leaving a hard, glossy finish said to be weather, water and rust proof.—Pan American Laboratories, Inc., Philadelphia. Price, qt., $1.50; gal., $5.



MATS FOR FORDS

This mat is made of extra heavy padded felt covered with artificial rubber and strongly stitched and is guaranteed to keep the front compartment in the Ford warm. Another type is made of metal and fits on the metal plates in the Ford car. Price, felt mat, $8 per dozen; rubber mat, $16 per dozen.—Nathan Novelty Mfg. Co., New York.

PLANCO FOLDING BUCKET

A collapsible bucket which folds and unfolds instantly; will scoop water from a shallow pool; easy to handle and pour; made of water-proof canvas and will not leak; metal parts are rust-proofed; it holds more than 1 gal.; size when folded 4 x 10 x ½ in.—Planet Co., Westfield, Mass.



ECONOMY CRADLE

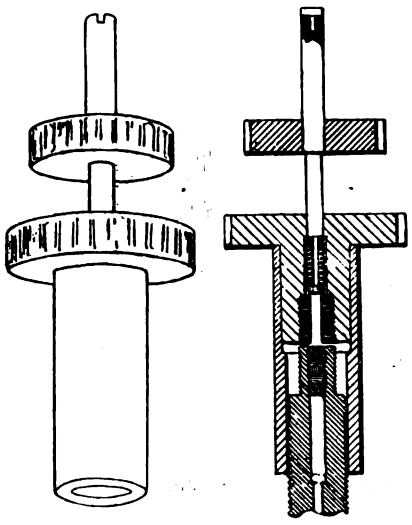
A hoist which enables one man to change the bodies on a Ford in 10 min. Price, $40; winch, $7; pulley blocks per pair, $1.50; 30 ft. ¼-in. steel cable, $1.25; two trucks for receiving bodies, $4 each.—Economy Body Lock & Cradle Co., Chicago.



KANT-LEEK WASHERS

For Ford rear axles. Two steel cups with four special oil-resisting Hardifit washers and retaining ring. Price, 90 cents per pair.—Kant-Leek Mfg. Co., St. Louis.



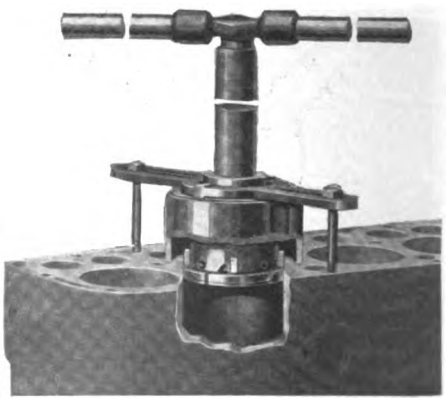


A & H VALVE RETHREADER

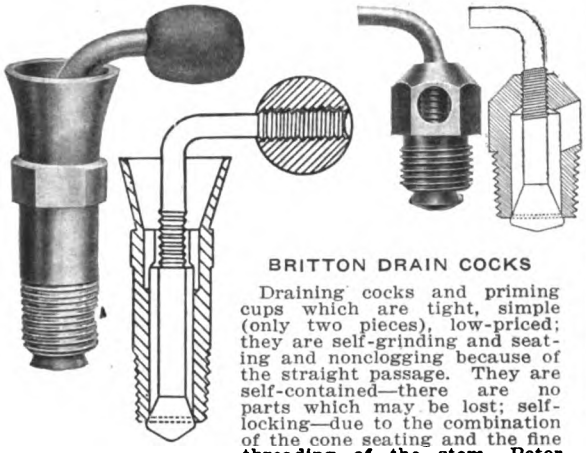
It rethreads all three threads on the tire valve stem. It consists of a tap and die which are the inner and outer members in the drawing. The die first trues the dust cap threads and then the valve stem threads are rewhich the tap is inserted and the valve stem threads are reformed.—A & H Mfg. Co., 505 West Forty-fifth Street, New York.

UNIVERSAL CYLINDER REBORING TOOL

It weighs 60 lb. and is accurate to .001 in., and it is capable of taking as much as 1/16 in. cut. In using the tool a beveled expansion ring is slipped into the cylinder, a pilot head fits into the bevel of the ring, and as the latter, under the pressure of the feed bar and the pressure head, works its way down the cylinder, the pilot head centers the cutting head. Price for Ford, Maxwell and Dodge cars, $80; next size, $100; 2½ to 5 1/16 in., $150.—Universal Tool Co., Detroit.



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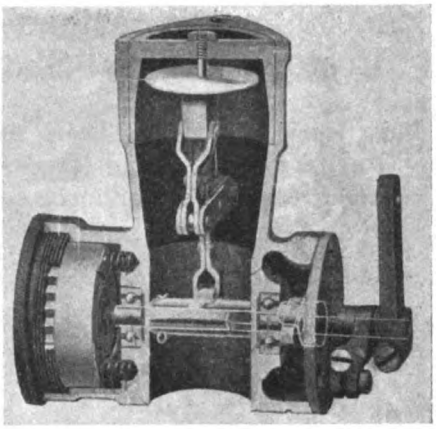
BRITTON DRAIN COCKS

Draining cocks and priming cups which are tight, simple (only two pieces), low-priced; they are self-grinding and seating and nonclogging because of the straight passage. They are self-contained—there are no parts which may be lost; self-locking—due to the combination of the cone seating and the fine threading of the stem.—Peter A. Fraese, 421 Canal Street, New York.



G. & C. AUTO POLICE WHISTLE

A whistle operated from the exhaust, which blows as soon as the engine is started, provided that the Yale lock is set.—Earl Gaston, Minneapolis, Minn.



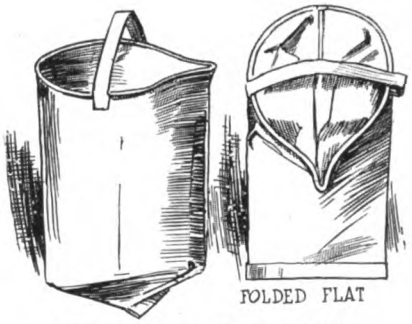
MONARCH GOVERNOR

It is placed above the carbureter. It consists of a disk diaphragm which floats in the intake passage, and as the velocity of the intake gases reach a certain point it raises and closes the butterfly valve below. It is readily adjusted.—Monarch Governor Co., Detroit, Mich.



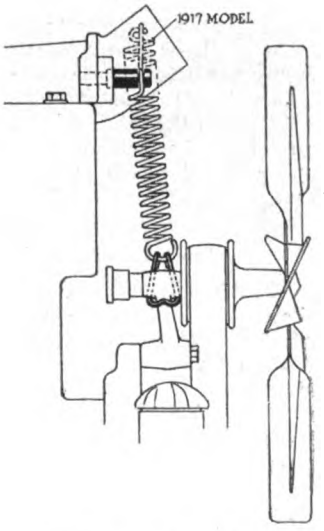
JUNIOR AUXILIARY SEAT

An auxiliary seat for the tonneau, which may be lifted out and placed under the seat cushion. So designed that it may be swung 6 in. from side to side, or forward or backward. Price, $2.50. Ideal Brass Works, Indianapolis.



PELICAN AUTO BUCKET

A canvas folding bucket which does not require a funnel. Capacity 7 qts.—Textile Auto Bucket Mfg. Co., Birmingham, Ala.

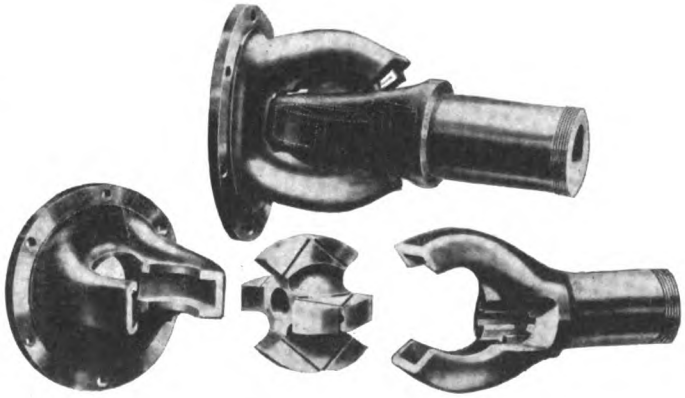


CHAMPION BELT TIGHTENER

For Fords. A slightly different design has been brought out for the new Fords in that the upper end of the spring is now carried on an offset arm. It is readily installed. Price, 25 cents. Blough Mfg. Co., Ionia, Mich.

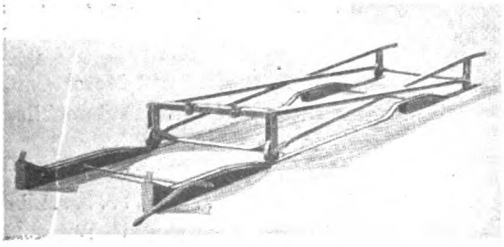
DYNOLITE—SPOTLIGHT FOR FORDS

It is designed for attachment to the Ford windshield, has a patent focusing device and a parabolic reflector. It is operated by the Ford magneto and uses a 6-volt, 24-cp. current, giving maximum light at 9 m.p.h. It is readily installed.—Detroit Electric Starter Co., Detroit.



THREE-PIECE UNIVERSAL

This universal is an unusual design which is said to have five times the bearing surface of the ordinary universal. It is made of drop-forgings and the grease is distributed to all parts by centrifugal force. It is housed in a steel case.—Three-Piece Universal Joint Co., Grand Rapids, Mich

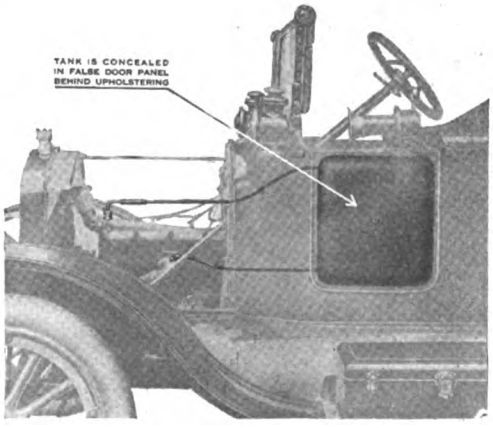


THERMOMAT COOLING SYSTEM

An auxiliary cooling tank to prevent overheating of the Ford. It condenses the steam and prevents the evaporation of the water. It consists of a copper tank with pipes connecting with the engine. It is filled automatically from the radiator. Price, $12.50. The Cowle Co., City Trust Bldg., Indianapolis.

CADY AUTOMATIC JACK

All four wheels are lifted from the floor. It is operated by a lever. It facilitates washing and repairing. Model F for Fords, $22.50; Model A, adjustable to all makes of cars, $30.—351 Hippodrome Annex, Cleveland, Cady Patent Appliance Co.



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275,000 Persons Attend Boston's Biggest Show

This Is 50,000 More Than Any Other Year—Cars and Trucks Sell Freely—Predict Shortage

BOSTON, March 10—Boston has just closed its most successful show. Attendance figures are far ahead of any previous year, for the first time reaching the total of 275,000. During the last 3 days of the show it was necessary to close the doors at times so great was the jam waiting to get in.

Those who did get in spent their money freely. Close estimates place the total number of sales close to the 2000 mark with the value of cars ordered at nearly $3,000,000.

According to manager Chester I. Campbell more than 4500 dealers from all over New England registered during the week. This is half as many again as registered at the 1916 show. Furthermore every one of them was a genuine dealer and was required to present credentials attesting this fact.

As a direct result of the show it is freely predicted by dealers that by June 1 it will be almost impossible to get a 1917 car from any dealer. Allotments now have been made up for the year and with practically every dealer running away ahead of scheduled deliveries an early shortage seems likely.

Almost Entirely Retail

The show is almost entirely a retail show, few wholesale contracts being signed. For the most part out-of-town dealers who attend already have signed contracts and come to the show to meet their prospects and sell them if they can, and also to badger the distributer for more cars.

The Salon, held at the Copley-Plaza, was not as well attended as the dealers had hoped would be the case. The impression prevailed that the admission charge of $1 was too high and that tickets to Mechanics' Hall should have had a stub, which, with an additional 25 cents, would admit to the Salon. As it was, few persons visited the Salon.

Motor truck dealers are particularly optimistic following the closing of the show. Many of them made sales off the floor and almost without exception long lists of prospects have been obtained.

Many truck dealers believe that the present freight congestion along the Atlantic seaboard is likely to continue for a long time, the reason being that the railroads are not keeping pace with business and industrial development.

This is tending to stimulate truck sales for both dealers and users believe that the problem of short haul transportation will be strictly up to the motor truck for some time to come.

Truck Merchandising Pays

Truck dealers hardly look to the show for direct results, which means sales. They expect that it will have principally an advertising value and the special merchandising exhibits put on by the Mack and G. M. C. dealers and illustrated in MOTOR WORLD last week, have had a wonderful effect. Norman Halliday, manager of the Mack Motor Truck Co., which exhibited the truck laid on its side, received more than 150 prospect names which is almost double that of last year. He attributes the increase chiefly to the novelty of the exhibit and the great amount of interest which it excited.

Of late there has been some slight sentiment in favor of a separate truck show though this is not thought well of by all the dealers. It is pointed out that a combined pleasure car and truck show is preferable, but that the show should be held a week earlier so that truck purchases made at the show, might be delivered in time for the opening of the season, on or about April 1, As it is at present, trucks with special bodies generally require about 2 months in the shop which means that deliveries are delayed until May 1.

Will Score Standard for High Price of Gas

WASHINGTON, D. C., March 13—The long deferred report of the Federal Trade Commission's investigation of increased gasolene prices will be made within the next 2 weeks, according to reliable information to-day. While government officials are reticent about conclusions arrived at by the commission, it is reported that report will score the Standard Oil Co. on the ground that the 30 constituent Standard companies have not been wholly dissolved, despite the supreme court decree.

Expect Tire Price Raise

NEW YORK, March 10—Tire prices are expected to rise as a result of the increase in prices of Egyptian cotton from Alexandria. The declaration of an embargo on shipments of that grade of cotton from Alexandria and Liverpool this past week was followed by a sharp rise in spot Egyptian cotton in this country. Sakellaridis cotton of the grades used extensively in this country for tire yarns and other purposes jumped between 3 and 4 cents a lb. commanding 56 to 57 cents, as compared with 52 to 53 a week or 10 days ago. Sea Island cotton was up about 1 cent a lb., extra choice Georgias commanding 53 cents. If the British embargo is of long duration the mills here might be forced to turn to American staples and this might bring about a scarcity of long staple cotton.

Henley-Kimball Gets Doble

BOSTON, March 13 (Special Telegram)—The General Engineering Co., Detroit, has placed the Boston agency for the Doble steamer with the Henley-Kimball Co. This company already distributes the Hudson in Boston and eastern Massachusetts, and it is understood will have the same territory on the Doble.

Chicago Used Car Show Uncovered at Banquet

Over 1,100 of Chicago Association Meet and Elect Officers—Used Car Show May 5-13

CHICAGO, March 13—A motor car show devoted exclusively to used cars proposed by Chicago dealers. The Coliseum, which has been the scene of annual motor shows, is to be filled May 5 to 13 by the Chicago Automobile Trade Association. Not a single new car will be seen among the several hundred exhibits and the cars will be sold direct from the floor. It is probable that some of them will be disposed of at auction.

The used car show will be under the direction of a committee of dealers headed by Erwin Greer, Ford dealer. The project was announced last night at the annual meeting and banquet of the trade association.

CHICAGO, March 12—Special Telegram—Over 1100 members of the Chicago Automobile Trade Association turned out to-night at the largest gathering any one local industry ever held in the city. The occasion was the annual banquet and election of officers of the association. Bismarck Gardens were turned over entirely to the Chicago tradesmen. There were two toastmasters, Harry Newman, Chicago representative of the Hal, and Ed. Westlake, of the *Evening Post*. Among the speakers were: Judge Pettit, Judge Sabath, formerly of the Chicago speeders' court, and Michael Flaherty, of the board of local improvements, who spoke on the means for relieving congestions of traffic in the city.

This banquet, so far as known, is the first ever to have been managed directly from the speakers' table by telephone. The three orchestras and the 24 entertainment numbers were called into action at the far end of the big room by telephone.

Henry Paulman, Pierce-Arrow, talked on the $60,000,000 bond issue in Illinois, one of the main projects of the good roads enthusiasts of the state. The association's ex-president, H. M. Allison of the Packard branch, spoke on the future of the association. The officers elected were:

President

C. R. Dashiell,
(Dodge) Dashiell Motor Co.

Vice-President

W. G. Tennant.....Oakland Motor Co.

Secretary

H. Paulman,
(Pierce-Arrow) H. Paulman & Co.

Directors

H. M. Allison....Packard Motor Car Co.
W. J. Boone.....Moline Automobile Co.
Howard F. Gardner,
Willard Storage Battery Co.
B. C. Buxton .....Liberty
J. W. Maguire....Republic Rubber Co.

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Small Sectional Shows Aid Big Distributers

Green Bay Exhibit Creates Business For Dealers Working Under Milwaukee Distributers

GREEN BAY, WIS., March 10—Between 11,000 and 12,000 people residing in northeastern Wisconsin attended the first annual show given by the Brown County Automobile Dealers' Association in Battery B Armory March 3, 4 and 5. It was the second show to be held in northern Wisconsin during the fag-end of winter under the patronage of the Milwaukee Automobile Dealers, Inc., which fostered a similar sectional exposition at Wausau, Wis., during the week preceding the Green Bay show.

The object of the sectional show is to create business for dealers working under Milwaukee distributers, whose clientele is not in a position to attend the big Wisconsin show at Milwaukee in January. As a retail selling proposition the Green Bay and Wausau shows excel in results any show ever held in Wisconsin. Here cars actually are sold and the cash turned over to the dealer.

Hall Holds 54 Cars

Fifty-four cars, representing 37 different makes, were exhibited at Green Bay. Fifteen retail firms made exhibits, which were supplemented by eleven accessory and supply displays. The decorative scheme was installed at no expense to the Brown County dealers by the M. A. D., which also furnished a setting for the Wausau show. This consisted of a smaller edition of the decorative plan used at the last Milwaukee show, Jan. 5 to 11. In the entire conduct of the Wausau and Green Bay shows the local dealers had the benefit of the personal aid of B. J. Ruddle, manager of the M. A. D. and its annual shows.

The Green Bay & Western Railway ran four special trains for the show on Sunday. Saturday was Farmers' Day, and practically all of the visitors came to the show in bob-sleighs, because the roads were piled so deep with snowdrifts that motor car travel was not risked. This created a novelty in motor show history, for many farmers who came to the Green Bay show to buy cars went back and forth on sled runners and behind horses.

The Boston show last week was not the only one in the United States to have an edge on the potato element. Wausau and Green Bay, Wis., are in the heart of the greatest and most prolific potato country in the Middle West. Other grains abound, to be sure, but just at this time the fact that farmers are getting from $2.35 to $2.85 per bushel means that a whole lot of cars will be purchased. In past years farmers were lucky to get 60 cents per bushel.

Green Bay is a city of nearly 30,000 population and now ranks about fifth among all Wisconsin cities. It is the center of population, industry and trade of northeastern Wisconsin, and has a Commercial club which has as its aim the development of the city to be second only to Milwaukee. The territory of Green Bay dealers includes Brown, Door, Kewaunee, Marinette, Oconto and parts of Outagamie, Manitowoc and Calumet counties, in Wisconsin. It is the gateway to the Upper Peninsula of Michigan.

Wausau is a city of 20,000 population, which always has been one of the leading lumbering centers of northern Wisconsin. It is the sub-distributing point for a vast territory, including all of Marathon, Lincoln, Langlade, Waupaca, Wood, Portage, Clark and Shawano counties, besides parts of half a dozen neighboring counties. It has perhaps a more profitable field than Green Bay, which is the center of a more developed field. Be it known that Green Bay is said to be older than Milwaukee, and richer in historic lore, for Father Marquette set foot upon the shores of Green Bay long before white men settled either Chicago or Milwaukee.

Farmers Have "Rolls"

The instance is vouched for by reputable persons attending the Wausau show that a farmer came to town with a large sleighload of potatoes, sold them to a Wausau produce dealer and walked over to the show and laid down cold cash for a five-passenger touring car. It was not a "flivver," but a more expensive car than that. This shows the power of the potato in northern Wisconsin.

Farmers flock to these sectional shows in larger numbers than to any other event of note. They form the greatest potential buying power for dealers in the cities in which the shows are held. Without discourtesy to the city dweller, it may be said that the Wausau and Green Bay shows were, primarily, "farmers' expositions." This is as it should be in these days of diamond prices for soft coal.

National Coast Show Plans Are Squelched

NEW YORK, March 12—There is not to be a Pacific Coast national motor car show after all. For some time Coast dealers have been agitating in favor of a national show to be held either in San Francisco or Los Angeles, but the National Automobile Chamber of Commerce has decided that such an event would not be practicable. As special commissioner of the N. A. C. C., Alfred Reeves formally opened the San Francisco show and received the invitation of Coast dealelrs to make future San Francisco shows national exhibitions. The N. A. C. C. has now extended its thanks to the Coast dealers for their invitation, and expresses the hope that future shows may be conducted on the same creditable plan as the last one.

Tractors Help Attract Farmers to St. Joseph

Cars, Tractors and Trucks Sell Freely at Third Annual Exhibition—Territory is Prosperous

ST. JOSEPH, MO., March 10—St. Joseph's third motor car show, March 7 to 10, inclusive, was by far the most successful affair of the kind yet held here. It attracted visitors from the adjacent districts of Missouri, Kansas, Iowa and Nebraska, and the representation of farmers was especially large.

In connection with the motor car and accessory displays there was an exhibit of tractors in a large tent adjacent to the show building—the municipal auditorium. The auditorium was decorated with bunting and flags, with a system of art light standards bordering the arena in which the cars were placed. The keynote of the decorative scheme was a continuous panorama of scenes of interest along the Pikes Peak Ocean to Ocean Highway and the Jefferson Highway, which cross each other here. The immense strip of canvas covered the walls of the building, completely encircling the cars.

Dealers exhibiting cars say that more cars were sold during the show than were ever sold before in an entire month. The problem with many of them is to make deliveries. The sales were about equally divided between residents of the city and farmers. A goodly number of sales of tractors to farmers was made. Seventy-five pleasure cars and forty tractors and trucks were shown. There was something more than half the number of different manufacture.

The territory supplied by the St. Joseph dealers comprises a great grain and livestock producing district, and with grain and stock at the present unheard of prices, the farmers and stock raisers are the motor car agencies' best patrons. Local dealers say their only grief is inability to get cars promptly.

To Name Detroit Dealer Candidates

DETROIT, March 8—The nominating committee that will select candidates for offices of the Detroit Automobile Dealers' Association has been appointed and includes: C. C. Starkweather, chairman; George W. Franklin, and Joseph A. Schulte. Candidates will be selected at least 10 days before the annual meeting which will be held early in April.

27,300 Cars in Connecticut

HARTFORD, CONN., March 10—Notwithstanding the Connecticut State motor car law provides for a reduction in fee for registration of cars after April 1, 27,300 car registrations for 1917 have been filed. Approximately 31,000 drivers' licenses have been issued up to this time. It is expected the car registrations this year will go well beyond the 50,000 mark.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Albert S. Colby has been appointed general manager of the Du Mor Automobile Specialty Co., Philadelphia. He succeeds S. Schwartz, who will be sales manager for Ohio, Indiana, Kentucky, Illinois, West Virginia and Pennsylvania.

"Billy" Beck has become general sales manager of the Comet Automobile Co., Decatur, Ill.

J. H. Liston, for the past two years manager of the Chicago branch of the Thermoid Rubber Co., Trenton, N. J., has resigned and is succeeded by **D. O. Pohlman,** who has been sales manager for a number of years. **H. F. Blanchard** has been made general sales manager.

T. P. Myers, who has been sales manager of the truck department of the General Engineering Co., Detroit, has been elected a vice-president.

H. A. S. Perch has been appointed sales manager of the Owen Magnetic Car Co., Philadelphia.

J. M. Witters has become affiliated with the Emil Grossman Mfg. Corp. and will represent that organization in the Middle West.

Thomas R. Jacobs has been made manager of the New York branch of the F. B. Stearns Co. He has been connected with the Stearns company for 12 years. The New York company hereafter will control both retail and wholesale sales. **John T. Connelly** will have charge of the wholesale department.

C. W. Martin, Jr., has been appointed manager of the Southern district for the Goodyear Tire & Rubber Co. His headquarters will be in Atlanta.

C. E. White has been appointed manager of the Chicago branch of the U. S. Light & Heat Corp. He was formerly manager of the Detroit Battery Co., Detroit.

Walter C. Guilder has become affiliated with the Knickerbocker Motors, Inc., New York, and will have charge of engineering, designing and production.

C. W. Hatch, who for the past eight years has been sales manager of the Perfection Spring Division of the Standards Parts Co., has resigned to become director of sales with the Parish & Bingham Co. He is succeeded by W. T. Culver, formerly Michigan representative.

F. M. Randell has been made sales manager of the Hartwell Motor Co., Jeffery distributer in Southern California.

H. Montgomery, who has been connected with the purchasing department of the Hupp Motor Car Corp., has resigned to join the purchasing department of the Harroun Motor Car Corp.

N. Vermilya, traffic manager of the Dort Motor Car Co., has been elected secretary of the Traffic Club of the Flint Board of Commerce.

Harold Klees has been appointed manager of the service department and J. T. Marshall has been made superintendent of the Detroit branch of the Buick Motor Co.

C. H. King has been made manager of the new department for dealers in the Chalmers Motor Car Co. organization. This department will be an auxiliary to the sales division. King has been in charge of sales promotion.

Jack Crittenden, Portland, Ore., one of the veterans of the business, who first entered the industry in 1898, has been elevated to the managership of th Covey Motor Car Co., Dodge and Cadillac distributer.

C. M. Stevens, Portland, Ore., has been made manager of the Chevrolet wholesale interests in Oregon and Washington, with headquarters in Portland.

C. M. Dickinson has been appointed manager of local sales and service in Cleveland for the Denneen Motor Co. He was formerly sales manager for the Champion Motors Co.

F. A. Wright has been appointed manager of an assembly plant which the Cadillac Auto Truck Co. of Cadillac, Mich., will open shortly in Albany, N. Y.

J. S. Kinworthy has been appointed manager for the Dallas Branch Times Square Auto Supply Co. He is one of the best known automobile accessory men in the South. David Fried, who has been in charge of the plant at Dallas, has been transferred to headquarters of the concern in New York.

J. B. Kohen has been named manager of the tire department of the Ford Vulcanizing Co., Norfolk, Va. He was formerly with the Koehler Accessories Co. of that city.

Fred T. Nesbitt has been appointed distributor of Commerce trucks for the territory of Greater New York, Long Island and Westchester County.

Thomas T. Fauntleroy has become New York branch manager of the Gurney Ball Bearing Co. He was formerly with the Pathfinder agency in New York.

Alex. K. Nairn has become general sales manager of the Gurney Ball Bearing Co. Mr. Nairn held the same position with the Hess-Bright company.

Herman Maise, chief engineer of the Springfield Body Co., has resigned his position.

John G. Martin, Rockford, Ill., has been appointed manager of a branch of the B. F. Goodrich Rubber Co., Akron, Ohio, and which will be the distributing depot for northern Illinois and southern Wisconsin.

A. G. Danvers, formerly of the Danvers Accessories Co. of Pawtucket, R. I., has been given the management of the storage battery service station of the T. & M. Storage Battery Co., Providence, R. I.

J. H. Anderson, assistant comptroller of the Maxwell Motor Co., Inc., will resign on March 15, to enter another business in New York City.

W. J. Hutchings, who for several years has been packer and stockkeeper for the Timken-Detroit Axle Co., has resigned to accept a position with the Saxon Motor Car Corp. in charge of all stock departments.

A. A. Templeton, president of the Detroit Seamless Steel Tube Co., has been elected president of the Detroit Board of Commerce, succeeding Edwin Denby, treasurer of the Denby Motor Truck Co., who has retired.

J. M. Case has resigned as advertising manager of the Scripps-Booth Corp. to become advertising and sales manager for the United Motors Co. of this city.

A. W. Coles, formerly with the Swedish Crucible Steel Co., has been appointed assistant general manager of the Parker Rust-Proof Co.

Charles Johnston has been appointed general sales manager of the Maltby Auto Specialties Co., Battle Creek, Mich.

W. G. Langdon, purhasing agent of the Hayes Mfg. Co., has resigned to join the purchasing department of the Willys-Overland Co., Toledo. **Tom Harris,** purchasing agent of the Buhl Stamping Co., succeeded Langdon at the Hayes plant.

February-May Report on Used Cars Is Ready

Twelfth Edition of Chicago Automobile Trade Association Lists Several Additional Cars

CHICAGO, March 12—The twelfth edition of the National Used Car Market Report has been issued by the Chicago Automobile Trade Association, Michigan Avenue, at Twenty-second Street, Chicago. The report is intended for use from Feb. 1 to May 1, and is exactly like previous reports except that six additional cars not mentioned previously now are listed. These are: Anderson, Ben Hur, Luverne, Rayfield, Richmond and Stephens. Three new dealer associations have been added to the list now using the report, making the total number 39. The new associations are: Peru Automobile Dealers Association, Peru, Ind.; Reading Automobile Dealers Association, Reading, Pa.; Springfield Auto Trades Association, Springfield, O.

To Make Dey Electric

YORK, PA., March 12—The Dey electric car, which is built around the axle and motor invented by Dr. Steinmetz, is to be produced here. J. W. Guthrie and H. W. Hayden are organizing a company to manufacture the car. It is planned to commence deliveries about June 1.

Willard R. Sweet has been appointed sales manager of the Cole Motor Sales Co., Providence, R. I.

V. A. Nielsen, engineer for the Apple Electric Co. and the Splitdorf Electrical Co., has resigned from both concerns.

Roy D. Heartz, assistant sales manager of the Premier Motor Corp., has resigned.

Allan Loomis, who was research engineer for 10 years for the Packard Motor Car Co., has joined the engineering force of the General Engineering Co., in a like capacity.

J. A. Carmody has succeeded J. C. Spears as production manager of the American Motors Corp., Plainfield, N. J.

S. W. Foran has been made the advertising manager of the Scripps-Booth Corp.

G. E. Lane, who was formerly with the Neumann, Lane Co., automobile distributer, has joined the forces of the Parker Rust Proof Co. as a member of the administrative board.

G. D. Edwards, Jr., formerly with the Springfield Body Corp., has been appointed purchasing agent for the Parker Rust Proof Co.

E. G. Crawford, formerly Ohio district manager for the Regal Motor Car Co., has been appointed sales promotion manager to succeed R. W. Donahue, who has resigned.

B. F. "Bull" Durham, who recently left the Maxwell Motor Co., Inc., to join the Stephens branch of the Moline Plow Co., has accepted a position on the sales force of the Harroun Motors Corp.

H. E. Bradner, manager of the Auto Body Co., Monroe, Mich., for the past 16 years, has been elected president of that company following the death of Lawrence Price, the former president.

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Closer Contact Likely With the Pacific Coast

Reeves Studies Dealers' Problems and Predicts Closer Cooperation Between Dealers and Factories

NEW YORK, March 10—Much closer contact between car manufacturers and their Pacific Coast dealers likely will result from the recent visit of General Manager Alfred Reeves, of the National Automobile Chamber of Commerce, to the San Francisco show. Reeves spent a month on the coast and in that time got close to the problems of the dealers.

Reeves presented a comprehensive report to the N. A. C. C. on his visit, and while the report is not made public, it is known that the question of relationship between manufacturers and Pacific coast dealers was handled without gloves. Apparently Reeves received many complaints from sub-dealers on the Pacific coast, who, according to their ideas, have not been well protected in certain matters.

Perhaps the most important thing obtained by Reeves was that of getting the impression of the Western dealers and also giving them the thoughts of the Eastern dealers. It is known that the N. A. C. C. has during the past year done considerable work among dealers by way of getting service organizations in several cities, and also with regard to the question of handling spare parts and co-operative insurance.

Reeves thinks that the used car situation is one of the biggest subjects that dealers have to handle at the present time. Motor World touched on this subject quite generally in its issue of Jan. 31 by quoting the extent to which the used car problem has absorbed Pacific coast activities. Reeves believes that the used car problem is a little worse on the Pacific coast than any other place. In eastern sections of the country dealers have used market reports for valuing used cars more than on the Pacific coast, but the coast dealers are planning to put into use schemes for a more active valuation of used cars. It is possible that San Francisco will start in the near future some form of co-operative used car motor mart.

Show Was Great "Get-Together"

The Pacific coast automobile show, held in San Francisco, was Reeves believes, the most representative get-together of dealers west of the Rockies ever held.

At present the Pacific coast territory is suffering severely from a motor car shortage. This is largely due to a shortage of railroad cars. General industrial conditions are normally prosperous on the Pacific coast, but not abnormally prosperous, as are conditions east of the Mississippi River. The fishing industry on the Pacific coast is especially prosperous and every day a special trainload of fish leaves the coast for Chicago and New York. Last year the orange crop of California was one of the best. The lemon crop in the same state was larger than previous crops. The nut industry is growing rapidly in that state.

The motor truck and farm tractor industries are developing rapidly on the coast. Trucks are being very generally used in the orange industry. Another general use of trucks is for stage work, there being so many sections west of the Rockies where there are good centers of population not adequately served by railroads. In such places railroads would be warranted in running one train a day, but with motor buses three trips per day are made. An example of this stage work is the line from Los Angeles to Bakersfield, 150 miles. There is a three-bus service per day on this trip.

In the farm tractor field, California has been manufacturing all of the tractors used in the State. Generally these are of the caterpillar type. Tractor conditions in California are more severe than in other parts of the country, such as the Mississippi Valley, and for this reason the development of a special type for California has been carried out in the last couple of years. Large tractor manufacturers in the Middle West admit that their sales are small west of the Rockies. Agriculture and horticulture in California demands tractors to cover a variety of uses. Frequently they operate on light sandy soil. This has demanded a light weight machine. The caterpillar design has proved most successful.

Truck Manufacturing Develops

California is developing as a truck manufacturing field. As a result of Reeves' visit the Moreland Co., in Los Angeles, was brought into membership in the N. A. C. C. This company which has been manufacturing trucks up in the hundreds, is doubling its production for this year and is establishing a new factory in another city. The company has already built up considerable export trade with Australia and the countries in the Far East. Another truck concern which is going ahead, but is not so large as Moreland, is the Kleiber, of San Francisco.

There is a fuel problem which gives promise of some difficulty on the Northern part of the Pacific coast, namely, in States where it is not permissible to sell gasoline of a gravity under 60. Such legislation naturally works to the injury of the fuel situation rather than benefitting it. It is well known that a gallon of crude will not yield nearly so much gasoline of 60 gravity as compared with 56 or 54 Baume. The East has been using gravities under 60 for several years and as a result the quantity of fuel from a given supply of crude is correspondingly greater. It would be better for those Pacific coast States to have such legislation as here.

Staybestos Doubles Space

PHILADELPHIA, March 12 — The Staybestos Mfg. Co., Germantown, has increased its floor space 50 per cent and is installing additional machinery to facilitate prompt shipment of its goods.

Farmers and Oystermen Buying in New Jersey

Second Bridgeton Show Draws Well Despite Vile Roads — Dealers Sold 500 Cars in 1916

BRIDGETON, N. J., March 10—The Bridgeton Automobile Dealers' Association, comprising the nine motor car dealers in the city, held its second annual show in the Preston Calendar Building March 6-14.

Fifty cars, representing 22 makers, were exhibited. The displays flanked an aisle of palms. Roses and apple blossoms covered walls and ceiling.

The show was a success financially. All available space was sold, seven accessory dealers having displays. The attendance was very large although the show was handicapped by some bad weather and the worst roads south Jersey has seen for 25 years. Because of road conditions, the time was extended from 5 to 8 days to give the farmers a chance to get in.

A few cars were sold at the show, but the dealers count more on creating a sentiment that will effect sales later on, as many sales last year were directly traceable to the first show.

Bridgeton is the largest manufacturing city in the section of New Jersey south of Camden. Lying in the midst of the most fertile farm lands in the State, and adjacent to the big oyster beds of Maurice River Cove, it is the business center of a rural population of 75,000.

The farmers and oystermen are a prosperous class, and, with merchants and manufacturers of the city, make up the bulk of buyers. Bank deposits in Bridgeton run close to $5,000,000. About 500 cars were sold from Bridgeton salesrooms last year.

Takes Over Retlaw

DETROIT, March 12—The Detroit Gauge & Metal Stamping Co. has been organized with $50,000 capital by Oliver S. Kelly, president; E. C. Lewis, vice-president, and Seabourne Livingstone, secretary and treasurer. E. S. Kelly and William Livingstone, the latter president of the Dime Savings Bank, are directors. The new company has taken over the entire business of the Retlaw Mfg. Co. and will enlarge the plant.

Cars Coming From Atlanta

ATLANTA, GA., March 8—A factory will be built in this city by G. W. Hanson, who will build automobiles. His first model will be under his name and called Hanson's Six. The plant will employ 100 or more men and will eventually turn out 2000 cars yearly. Associated with Hanson will be Donald Ferguson, an engineer, and Arthur Burdette of Atlanta.

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General Motors Boosts Dividend Rate to 12%

Delaware Company Increases Rate from 4 Per Cent to 12—New Jersey Company Also Cuts Melon

NEW YORK, March 10—The General Motors Corp. of Delaware yesterday declared a quarterly dividend of 3 per cent on its common stock. The last dividend on the common stock declared 3 months ago was 1 per cent, or at the annual rate of 4 per cent. The dividend just declared is at the annual rate of 12 per cent. The board of directors of the General Motors Co. of New Jersey has declared a regular quarterly dividend of $15 a share on its common stock, establishing an annual dividend rate of $60 a share on its common stock. The dividends of both companies are payable May 1 to stock of record April 12.

The General Motors Co. of New Jersey has sold during the 7 months ended Feb. 28, 1917, 95,533 cars and trucks, as compared with 73,057 cars and trucks for the same period a year ago.

The gross sales for these two periods are respectively $102,930,670, as against $86,675,713, and undivided profits for common stock are respectively $16,000,984 for the last 7 months, as compared with $14,991,979 for the 7 months ended Feb. 29, 1916.

A quarterly dividend of 1½ per cent on the preferred stock has been also declared by the General Motors Corp. of Delaware. The dividend is payable May 1 to stock of record April 12. The preferred dividend of the New Jersey company is 3½ per cent, payable May 1 to stock of record April 12.

Overland Income $17,529,689

TOLEDO, March 12—The net income of the Willys-Overland Co., in 1916, was $17,529,689, according to the annual report issued by the company, to-day. Of this, $10,016,420 represents the net earnings and $7,963,970 the premiums received on securities. Profits amounting to $1,318,665 on shipments to distributing branches which were unsold on Dec. 31, 1916, are not included. Deducting fixed interest charges of $450,702 the report shows the net earnings of the company to be $9,565,718. The report shows that after providing for dividend requirements of 7 per cent on preferred stock, the balance of $16,479,689 including net earnings and premiums received on securities equals about $10.40 a share on the 1,570,776 shares of common stock of $25 par value, outstanding.

Detroiter in a Merger

DETROIT, March 12—The Detroiter Motor Car Co. will be taken over by the Detroiter Motors Co., a new $4,000,000 corporation, this week in company with two motor car parts companies. The names of the parts companies are at this time being withheld owing to details which are yet to be completed. Plans have been arranged for the expansion of the Detroiter output and it will be increased from 2000 to 5000 cars yearly.

J. S. Kuhn, New York banker, has been active in the financing of the new company and will become vice-president. A. O. Dunk, president of the Detroiter Motor Car Co., will become chairman of the executive board. W. R. Bamford, vice-president of the old company, will become president; W. L. Heuser will be re-elected secretary, W. L. Van Deusen, sales manager and R. T. Yeats, director of export sales will continue with the new company in the same capacities. Election of officers and completion of details will take place in New York on March 15.

Menominee Changes Prices

MENOMINEE, MICH., March 13—A change in prices on five models of Menominee trucks has been made public by the Menominee Motor Truck Co. as follows: Model E W, formerly $1,295 now $1,245; model F W, formerly $1,575 now $1,790; model H, formerly $1,775 now $2,050; model D, formerly $2,250 now $2,475; model G, formerly $2,775 now $3,275.

Hupp Out of Emerson

NEW YORK, March 10—R. C. Hupp has resigned as vice-president, director and chief engineer of the Emerson Motors Co., having completed the work of designing and building the first Emerson cars, the production of which is now going forward in the company's plant at Kingston, N. Y. Hupp has opened an office in Long Island City, where he is at work on new plans, the announcement of which is to be made later on.

Chicago Dealer Dies

CHICAGO, March 13—Clinton A. Hamilton, general agent for the Allen Motor Co., died here yesterday. He was for years identified with the Brown Corliss Engine Co., at Corliss, Wis., as its general manager, and later became president of the Racine Mfg. Co., and then manager of the Lavigne Gear Co.

More Territory for Leavitt

LOS ANGELES, March 10—As intimated in a recent dispatch from here to the effect that the J. W. Leavitt company, recently appointed Los Angeles county Chevrolet representatives, would not confine its business to such a restricted territory, announcement now is made that it has been put in charge of the sales business in San Francisco, Oakland and San Diego, also. In order to take care of the initial order from this company, it was necessary for the Chevrolet factory at Oakland to increase its daily output to beyond any previous capacity. Although present contracts of Chevrolet dealers on this coast are to be recognized it is expected that gradually the entire distribution will be assumed by the Leavitt organization.

Quinby, Body Builder, Retires From Business

Famous Concern, Established 80 Years Ago, to Close Up Shop — Whole Plant to Be Sold

NEWARK, N. J., March 9—J. M. Quinby & Co., one of the oldest carriage and automobile body builders in this country, has decided to retire from business after a period of 80 years in body building. Its big $400,000 plant in this city has been put up for sale. The company is cleaning up all its business and is refusing new orders. The company has been building bodies since 1900 and was one of the first to build closed bodies for private use. This company also specialized in high class body work for foreign cars. Last year the company planned the manufacture of a $5,000 car and was to have turned out about 500 of these in a year, but negotiations fell through. According to the plans of the company now, it will sell the plant with or without the goodwill of the business. No plans for the future have as yet been decided upon.

Kissel Twelve at $2,250

HARTFORD, WIS., March 8—The Kissel Motor Car Co. will start active production of its twelve in about 2 weeks. The car will sell at $2,250 for the regular touring bodies, and $2,650 with the All-Year Sedan. The motor will be 2⅞ x 5, with overhead valves. Other features include force-feed oiling, multiple disk clutch, Delco ignition, Stromberg carbureter, both internal expanding and external contracting brakes, underslung ¾ elliptic rear springs, vanadium springs on both front and rear, Goodyear tires, and Firestone demountable rims, with two extra rims.

To Produce Export Cars

NEW YORK, March 12—American Motors, Inc., which was formed recently to act as an intermediary between American car manufacturers and their export dealers, will increase its scope by invading the car manufacturing field. It will produce an assembled car, under the style Amco, which will be particularly adapted for foreign use. Probably it will have a four-cylinder Continental engine. The cars probably will be shipped knocked down. It is expected to produce 7000 to 8000 cars a year eventually. The car is designed by D. M. Eller.

Car Shortage in Dallas

DALLAS, March 10—Dealers are facing a crisis brought about as the result of failure to get freight cars. Never before have there been so few cars stored at this time. Especially in Dallas is this shortage noticeable. So serious is the freight car shortage that dealers have been put to a heavy additional expense in getting the cars. Many dealers have received cars by express.

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Car Owner Responsible When Person Is Killed

Owner to Blame Even if Chauffeur Takes Car Without His Permission—New York Decision

NEW YORK, March 10—A decision has just been handed down here which states that an owner of an automobile may be held responsible for a killing even though its chauffeur takes the car without his permission and maims or kills a person. The case was tried in the Appellate Division of the Supreme Court. The defendant, the owner, argued that since the car was in dead storage and was taken out without the owner's permission he should not be held responsible. The plaintiff contended that since the chauffeur was in the employ of the owner the latter is liable.

Knight Engines for War Duty

NEW YORK, Mar. 10—Knight engines are destined to play an important part in the world conflict raging in Europe. Engines of this type have been selected as part of the special equipment for war trucks to be used by the British Government in building Camp Borden in Canada.

Limit Tire Service

MEMPHIS, TENN., Mar. 10—Leading tire dealers have reached an agreement to render free road and station service only for those using their own tires, and not to give this service indiscriminately, as in the past. They have issued an invitation to all motorsts to arrange for service. The dealers in the agreement are the Newsum Tire & Vulcanizing Co., 638 Tire Company, and 416 Tire Co.

Ohio To Ban Glaring Lamps

COLUMBUS, OHIO, March 10—A bill has been introduced in the Ohio legislature making it a misdemeanor to have glaring headlights. The bill limits the height of the lights' rays above the ground at 3½ ft. Another bill providing for a graduated scale of registration fees is pending. The rates are $7.50 for cars under 35 hp. and $10 for cars above that.

Dunham Has a Farm Tractor

DETROIT, March 5—George W. Dunham, recently elected president of the Society of Automobile Engineers, has perfected a farm tractor that will probably be placed on the market in the near future.

Jacksonville Show Put Off

JACKSONVILLE, FLA., March 8—In order to secure better railroad rates for visitors the Jacksonville Auto Dealers Inc. have postponed the date of the Jacksonville show opening from April 9 to April 30. The show will be held in the new armory and will last a week. A. L. Morgan is chairman of the executive committee, Henry Havens is secretary of the organization, and Claude Nolan is president.

Drives Electric Car Over Snow

TOLEDO, Mar. 10—The Ohio Electric Vehicle Co., unable to get even express cars for shipment purposes, was forced last week to drive one of its electric cars over snow and sleet to Springfield, Ohio, in order to have the car there for the opening of the automobile show. The distance of 148 miles was negotiated without trouble.

Moline Dealers Form Association

MOLINE, ILL., March 8—The Moline, East Moline and Silvis Automobile Association has been formed by the motor car dealers in those localities. L. F. Haemer is president, W. E. McClain vice-president, G. C. Hepburn secretary, A. J. Oslund treasurer.

Hirsig Ty Cobb Contest

NASHVILLE, TENN., March 8—The Hirsig Auto Supply Co., accessories jobbers, has inaugurated an unusual bonus plan for its salesmen. The amount of business that can be secured from each territory is estimated and the securing of this volume gives the salesman a "batting average" of 1000. Any man making an average of 750 receives a bonus.

Kellogg Occupies Addition

ROCHESTER, N. Y., March 10—The Kellogg Mfg. Co. is starting production in its factory addition. Considerable remodeling and changing has been done in the plan to increase shipping room and office space.

Rhode Island Getting Cars

PROVIDENCE, R. I., March 8—Rhode Island dealers have been fortunate in getting a sufficient supply of cars. They put in heavy advance orders, have a fair stock on hand, and expect no trouble from freight car shortage.

Garagemen in Moultrie County Unite

SULLIVAN, ILL., March 8—Moultrie County motor car dealers and garagemen have organized the Moultrie County Garagemen's Association, with Arnold Newbould as president, Carl Wolf secretary, Wesley S. Reedy treasurer.

Witherell Wins Taber Contest

HARTFORD, CONN., March 8—A. L. Witherell has the best record in the Russell P. Taber, Inc., sales contest for the past three months. C. D. Edgerton ranks second. The firm is moving into a new three-story and basement fireproof building at 128 Allyn Street.

Nashville Ford Dealers Organize

NASHVILLE, TENN., March 8—The Nashville Ford Dealers' Assn. has been organized, with the following officers: Z. D. Dunlap, president; Charles H. Simpson, vice-chairman; Walter McAdams, secretary and treasurer.

Racing Season to Open On Chicago Speedway

Initial Event Will Be 250-mile Race for 300-in. Cars—Other Notes of Racing

CHICAGO, March 8—The first Chicago races have been set for June 9 and will be for a distance of 250 miles, with a purse of $20,000. The event will not be classed as a championship event as the American Automobile Association has decided to allot each track only one of the championships and the Chicago number is to be reserved until later in the year. This race will be limited to 300 cubic inches displacement, but as a curtain raiser it is planned to stage a 100-mile race for non-professionals in the morning, limited to cars of 200 cubic inches.

Three More Sunbeam Racers

CHICAGO, Mar. 10—Prospects for the addition of two and perhaps three six-cylinder Sunbeams to the field of racers in America for the 1917 speed season are bright, providing that this country does not become actually involved in the war. This is the message brought back by Eddie Rickenbacher, who has just returned from Europe and is now on his way to the Coast to report to William Weightman, the millionaire sportsman of California.

Four Racing Cars from Abroad

INDIANAPOLIS, March 8—The addition of four foreign cars to the American racing contingent for the 1917 season was practically assured by the announcement made to-day at the meeting of the American Speedways Association that definite arrangements for the importation of two Sunbeams and two Fiats were nearing completion.

DeWitt County Dealers Organize

CLINTON, ILL., March 8—Every dealer and garageman in DeWitt County joined in the formation of the DeWitt County Automobile Dealers' Association at Clinton last week. Leslie Forbes was elected president, Cloyd Corrington vice-president, O. L. Langelier secretary-treasurer.

Goodrich Retires Stock

AKRON, OHIO, March 1—The B. F. Goodrich Co. will retire 9000 shares of its preferred stock in accordance with a provision of the company's charter that this number of preferred shares be retired annually.

The company has added to its plant account during 1916, extensions and equipment costing $3,519,549.

Goodyear Issues Stock

AKRON, OHIO, March 1—The Goodyear Tire & Rubber Co. will issue $6,000,000 worth of new preferred stock and $3,370,000 worth of new common.

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First Charleston Show Draws Market Gardeners

Visitors From Miles Around Flock to First Exhibit of the Kind in This Territory

CHARLESTON, S. C., March 8—Under the auspices of the Chamber of Commerce, the Charleston Advertising Club and the local motor car dealers, Charleston's first motor car show was held all last week in a huge tent on Marion Square, the drill ground of The Citadel. Thirty different factories were represented and sharp interest was displayed by the hundreds attracted to the show. Cars were mounted on platforms, the better to exhibit them. About twenty cars are reported to have been sold.

The promoters of the show are well pleased with the result and are discussing the feasibility of holding a similar show on a much larger scale here in the autumn. At this show only motor cars and motor car accessories were permitted. No tire concerns were invited to participate, although several are said to have manifested an inclination to make exhibits of their goods.

All classes of people showed an interest in the show, which was enlivened with good features. Metz's Military Band gave concerts each afternoon and night and a squad of bluejackets from the United States navy yard demonstrated a Whitehead torpedo. Market gardeners from the Yonge's Island section were regular visitors and several of them remarked that they would soon be buying new cars as a result of seeing the cars on exhibition.

Being the first show of the kind held in this part of the country, persons interested in motor cars came from a long distance to see the exhibits. Most of them were people who already own cars, but who are looking for improvements that appeal to them, and dealers here are well satisfied with the impression made on such visitors. They believe that the show has done them a world of benefit and that results will be appearing soon. They say that they are ready to enter another such exhibition in the fall, because they know they have benefited actively.

Cars for the Queen of Spain and other Spanish persons of station have recently been exported through Charleston on Spanish steam freighters, and there was some hope that some of these Spain-bound cars would be here during the show.

Standardize Labor Rate

MILWAUKEE, WIS., March 3—Garagekeepers of Iola and Scandinavia, in Waupaca County, Wis., have given public notice to their patrons in the local newspapers that commencing April 1 they will charge at the rate of 60 cents per hour for all labor on repairs and adjustments. This is done, it is stated, to meet the advance in the price of materials and wages. At the same time the limit of credit is fixed at 30 days and credit will be extended only to those who conform themselves to that term. Motor livery work is required to be paid in cash, without exception. The agreement is signed by the Swenson Garage, Iola; Anderson Garage, Scandinavia; Modern Garage Co. and R. I. Anderson, Iola.

Dayton Top Patent Upheld

DAYTON, OHIO, March 10.—C. C. Blackmore, head of the Dayton Top Improvement Co., has obtained a permanent injunction in the local federal court against H. E. Randall, president of the Randall Rotary Power Plug Co., Pittsburgh, Pa., prohibiting the latter from manufacturing a door curtain opener infringing on a patent held by the former. A suit in the case was settled by Mr. Randall acknowledging the infringement and Mr. Blackmore waiving damages.

Conditional Sales Invalid in Tennessee

That conditional sales are invalid in Tennessee has just been decided by the United States Circuit Court of Appeals for the Sixth Circuit.

Under this holding it will be impossible to sell automobiles and retain the title to them until the purchase price is paid, as is becoming common practice in the trade.—Mitchell vs. Poole, 235 Federal, 822.

Shields Succeeds Shields

CLEVELAND, March 1—The Shields Machine Co. has been formed, with a capital of $250,000, to succeed the Shields Machine & Tool Co., maker of automobile parts. It will enlarge the capacity of the plant and is contemplating additions to its products.

Carbureters from Los Angeles

LOS ANGELES, CAL., March 1—The Harry A. Miller Mfg. Co. is negotiating with the Chamber of Commerce, Austin, with the view of installing a plant to cost $325,000 for the manufacture of automobile carburetors. The manufacture of a specially designed engine is also contemplated.

National Shipping Cars

INDIANAPOLIS, March 3—The National Motor Car & Vehicle Corp. reports that irrespective of the freight embargo shipments for the month of February have been made according to schedule for that month, which is largely in excess of preceding months and of the same month last year. Shipments would have exceeded schedule except for freight embargo.

Buffalo Plant for Kelly-Springfield

NEW YORK, Feb. 27—The Kelly-Springfield Tire Co. has bought the plant of the Northland Rubber Co., Buffalo, N. Y.

Hit At Big Allowances In Trading Used Cars

Louisville Dealers Discuss Chicago Market Report and See Need for New Association

LOUISVILLE, March 3—Providing a movement initiated last night is carried through, Louisville dealers will cease making large allowances for used cars. Fifty-two automobile men, proprietors, members of retail firms and salesmen met at the Seelbach and discussed the "problem of the used car," the consensus of opinion at the close of the discussion being that local dealers have been entirely too liberal.

The meeting was called by W. A. Thomas, the dealers being invited to hear F. W. Gottleib, of the Chicago Automobile Trade Association, make an address on "The Problem of the Used Car." Gottleib discussed the evils arising from taking old cars in partial payment for new ones. He advocated the use of regular market reports, such as are published by the Chicago Automobile Trade Association.

The sentiment was favorable to the formation of a new automobile dealers' organization, which will be entirely distinct from the present association.

Stromberg Declares Dividend

CHICAGO, March 1—The Stromberg Carburetor Co. of America has declared an initial quarterly dividend of 75 cents per share on its 50,000 shares of no par value stock, payable April 2 to stock of record March 15.

Net earnings of the Stromberg Motor Devices Co. of Illinois, for 1916, all of which stock is owned by the Stromberg Carburetor Co. of America, were $278,000, equal to $5.50 per share on the Stromberg Carburetor stock.

Disbrow Company Incorporated

ALBANY, N. Y., March 1—The Disbrow Motors Corp. has been incorporated to build engines, machinery, automobiles and accessories. The capitalization consists of 2500 shares of $100 each, 10,000 shares of no par value, and a working capital of $300,000. The incorporators are L. A. Disbrow, W. H. Byers, J. J. Curl, all of Cleveland.

Mr. Disbrow announced his new car at the Chicago show. It is entirely a speed design and is furnished in two models which are interchangeable in all respects and only differ in the engines. The prices are $3,500 for the larger car and $2,650 for the smaller.

Hayes Earns $55,947 in January

DETROIT, March 1—The Hayes Mfg. Co., which recently increased its capital from $625,000 to $1,500,000, reports earnings of $55,947 for January. The company in making public its first balance sheet shows assets of $2,192,124.

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Dallas Dealers Stage First Closed Car Salon

Thousands Visit Exhibition Which Ushers in Warmer Weather—Event Called a Success

DALLAS, March 10—Texas's first automobile salon, Texas's greatest closed car show and the South's biggest display in Sedans, was held last week at Dallas. The salon opened at noon Monday, March 5, and remained open until Wednesday night. During that time thousuands of Dallas people and thousands of visitors saw the display. The show was held in the billiard rooms of the Oriental Hotel.

Possession of the spacious ground floor room was given to the salon committee only on Sunday evening. A force of decorators was immediately put to work, and the result of their efforts was fully apparent. The plans were made by Roy Munger, Munger Automobile Co., Cadillac distributer; W. F. Rose, of the Ray Rose Co., and W. G. Langley, Franklin distributer.

The salon was conducted on a simple yet a high plane. Society folk from all over the State were here. At times the crowds were so great that hundreds were turned away. This is said to have been the biggest thing of the kind the South has ever seen. Dealers did not contemplate what it would be and what the result was to be.

South Needs Closed Cars

That it means, to a certain degree, revolutionizing of the sale of closed cars in the South is the belief of dealers. "The South has been behind in buying closed cars," said C. L. Zutavern, Oakland distributer, "for two reasons. The people have not realized the comfort of the closed car and the climatic conditions here are different to those in the North. On the first evening of the salon we secured eighteen new prospects, prospects that we had never before heard of. They are live ones too. They want closed cars, because they see now the comfort of them. In my opinion it means that closed cars will be in a bigger demand than other cars."

M. C. Cameron, president Trinity Motor Co., Dodge distributer, said: "People who visited the salon are looking more enthusiastically than ever before on the closed car. We have secured many prospects. The convertible car, in my opinion, will be in greater demand now than any others. The salon has been a revelation to prospective buyers."

Roy Munger, Munger Automobile Co., Cadillac distributer, said: "Beyond a doubt the automobile salon has created more enthusiasm for closed cars than anything Texas has ever had. Dealers have secured many prospects for the closed cars. They have been shown comforts they did not know the automobile carried."

W. G. Langley, president Franklin Motor Car Co., Franklin distributer, said: "The salon was great. It created more interest in closed cars than I had contemplated or expected. We have secured a number of real live prospects. The closed car, in my opinion, is going to within a short time be as popular here as it is in the North and East. We have more than been repaid for our expense in the salon."

The salon will be made an annual attraction at the Style Show. Next year it is planned to conduct the salon on a bigger basis. A larger building is to be secured and bigger plans made.

For this show dealers got together and figured out what the expense would be and then taxed each dealer his share of the expense. This, it is said, will be about $20 or $25.

Mexico Eliminates Duty

LAREDO, TEXAS, March 10—The de facto government of Mexico has just issued a decree which went into immediate effect removing the import duties on automobiles and all other motor vehicles. This action is regarded as of the greatest importance to automobile dealers, particularly those located in towns upon and adjacent to the border.

Several months ago the Carranza government increased the import duties on automobiles and accessories to what was practically a prohibitive figure, and what little trade was being carried on with that country in these lines was immediately discontinued as a result.

Immediately upon the promulgation of this new decree, removing the import duties, dealers in Laredo, Brownsville, Eagle Pass and other border points which have open railway communication with the interior portions of Mexico, filled orders that have been pending for a large number of cars. The first day when the notice of the decree was received here twenty automobiles were shipped into Mexico at this point. It is expected that as a result of this duty abrogation a considerable trade in automobiles and motor vehicles with Mexico will be carried on.

Wheeling Show Put Off

WHEELING, W. VA., March 10—A disagreement between the Ohio Valley Automobile Club, sponsors of the 1916 automobile show, and the dealers' organization, has made the holding of Wheeling's second automobile show an impossibility, at least at this time. The dealers are discussing the details for a show to be held after the Pittsburgh show; this show, provided it is held, will be independent of the O. V. A. C. A committee of arrangements, composed of three members of the O. V. A. C. and three dealers, appointed at a joint meeting of the club and dealers, to arrange details, other than the date March 5 and 10, which previously had been agreed upon, could arrive at no satisfactory solution of the problem.

Farmers Purchase Cars At the Jamestown Show

Improved Roads and Higher Food Prices Have Boosted Sales—Farmers Principal New Owners

JAMESTOWN, March 6—The third annual show of the Jamestown Automobile Dealers' Association opened here Monday night. The show was in the 74th Regiment Armory, and there were on exhibition between fifty and sixty cars.

It is understood that about twenty cars have been contracted for. Jamestown, while located toward the southern extremity of Chautauqua County, is the natural distributing point for cars, because of its railroad facilities and for the fact that it is the largest city in the county. According to the figures which have been compiled, there was a gain of 1250 cars in the county during the past year. This means that one out of every 26 families in the county has a car of some description.

Owing to the betterment of highways the range of the automobile has gradually broadened, and as a general rule it is the farmer who is purchasing cars this year. During the past year he has been able to realize far more profit from his goods than ever before, and this is being advanced as the reason for the influx of the farmers to the show. This does not mean that the sale of cars is confined to the farmers, for it is not. There are some city people purchasing cars, but many are people who have previously owned cars and have disposed of their old one.

United Drops Brown-Lipe-Chapin

NEW YORK, March 7—With the decision not to exercise the option to acquire the factory and business of the Brown-Lipe-Chapin Co., Syracuse, by the United Motors Corp., negotiations between these two concerns have been abandoned. This means that the United Motors Corp. in no way whatsoever will be connected with the affairs of the Brown-Lipe-Chapin Co. While it was the impression among the automobile trade that the Brown-Lipe-Chapin Co. had actually been acquired by the United Motors Corp., as a matter of fact the negotiations had never progressed beyond the point of an option to purchase the Brown-Lipe-Chapin Co.

Doble Steam Merger Rumored

DETROIT, March 8—Rumors that the Michigan Stamping Co. will merge with the General Engineering Co., makers of the Doble steam car, are current. A meeting of stockholders of the stamping concern has been called for March 16. Officials at this time deny that a merger is pending.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Mode	Motor	S. A. E.	Ignition	Carbureter	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-44	6-3½x4½	25 3	Remy	Stmbg	Remy	DP	3	122	32x4	SS	1195	†1250	1195	1495	1820	....	....
ALLEN																	
Classic	4-3½x5	22.5	Wsths	Stmbg	Wsths	C	3	112	32x3½	SS	850	850	†850	1175	....	....	1195
AMERICAN-SIX																	
A	6-3 x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1285	....	....	....	....	....
AMS-STERLING																	
17	4-3½x4½	15 6	Bosch	Stmbg	Bosch	DP	3	110	30x3½	SS	...	....	....	. ..	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25.4	Wsths	Own	Wsths	DP	3	120	33x4	SS	1275	1250	*1250	....	....	....	....
APPERSON																	
6-17	6-3½x5	29.4	Remy	Rafld	Bijur	DP	3	130	34x4	SS	1750	....	1750	....	....	....	....
8-17	8-3½x5	31.2	Remy	Rafld	Bijur	DP	3	130	35x4½	SS	2000	....	2000	....	....	....	....
AUBURN																	
6-39	6-3½x5	23.4	Remy	Rafld	Remy	DP	3	120	34x4	SS	1145	1145	†1145	....	....	....	1320
6-44	6-3½x5½	29.4	Delco	Rafld	Delco	DP	3	131	35x4½	SS	....	†1535	1535	....	....	....	1785
AUSTIN																	
Hy-King	12-2½x5	39.7	Delco	Stmbg	Delco	D	6	142½	34x4½	SS	3750	3750	3750	4550	4950	5250	....
BIDDLE																	
D	4-3½x5½	22.5	Dixie	Zenith	G & D	DP	4	122	32x4	QD	2200	2350	†2275	....	....	3800	3900
BOUR-DAVIS																	
17	6-3½x4½	25.3	G & D	Stmbg	G & D	DP	3	118	32x4	QD	....	1250	....	....	....	....	....
BREWSTER																	
4-4	x5½	25.6	Bosch	Zenith	U. S. L.	C	3	125	34x4½	SS	†6500	....	....	....	7500	7700	....
BRISCOE																	
B4-24	4-3 1/16x5½	16.3	Conn	Mayer	Splitdorf	C	3	105	30x3½	QD	685	685	†685	....	. ..	....	810
8-38	8-3 x3½	28.8	Remy	Zenith	Aplco	C	3	114	32x3½	QD	†985	985	....	....	....	....	....
4-38	4-3 1/16x5½	18.9	Remy	Mayer	Aplco	C	3	114	32x3½	QD	†785	785	....	....	....	....	....
BUICK																	
D 4-34-35																	
	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	660	675	....	....	....	....	....
6-44-47																	
	6-3½x4½	25 3	Deloo	Marvel	Delco	C	3	115	34x4	SS	1040	1070	‡1440	....	1835	....	....
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DD	3	124	34x4½	SS	....	....	1385	....	....	....	....
CADILLAC																	
55	8-3½x5½	31.2	Delco	Own	Delco	D	3	132 / 125	36x4½	SS	†2240	2240	2240	2960	....	3760	2835
CASE																	
T17	4-3½x6	21.0	Conn	Rafld	A-Lite	C	3	120	34x4	QD	†1190	. ..	1190	....	..	....	....
CHALMERS																	
6-30	6-3½x4½	25.4	Remy	Stmbg	Wsths	DP	3	115 / 122	32x4	SS	1230	1250	1350	1440	1850	2550	....
CHANDLER																	
17	6-3½x5	27.3	Bosch	Rafld	G & D	D	3	123	34x4	SS	†1395	....	1395	1995	1995	2695	1995
CHEVROLET																	
4-90	4-3 1/16x4	21.7	Conn	Zenith	A-Lite	C	3	102	30x3½	C	550	550	....	....	....	....	....
F5-F2	4-3 1/16x4	21.7	Conn	Zenith	A-Lite	C	3	112	32x3½	SS	800	800	....	....	....	....	....
D	8-3½x4	36.45	Conn	....	A-Lite	C	3	120	34x4	SS	1385	....	....	....	....	....	....
COLE																	
8-60	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	†1795	....	1795	....	2595 / 2395	2395	2295
CROW-ELKHART																	
CE-35	4-3½x5	19.6	Conn	Zenith	Dyneto	DP	3	114	32x3½	SS	†825	795	....	....	....	....	935
DANIELS																	
8	8-3½x5	33 8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	†2600	....	2800	....	....	4000	. ..
DAVIS																	
B & I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	...	1195	1195	1195	1595	1795	....	1995
J	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	124	34x4½	....	....	1495	1495	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25 3	Conn	Bell	A-Lite	D	3	119	33x4	SS	‡1195	1195	. ..	1373	....	....	1398
F	4-3½x4½	22 5	Dixie	Schebler	Dyneto	D	3	112	33x4	SS	....	985	...	....	....	....	....
DOBLE	2-cyl. 5x4 double-acting steam engine. Boiler pressure 600-lbs.												2500				
DODGE BROTHERS																	
	4-3½x4½	24	Delco	Stewart	N.E.	D	3	114	32x3½	S	785	785	...	950	1185	....	950
DORRIS																	
I-B-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	8	128	36x4½	SS	....	....	2475	3250	3350	3675	....
DORT																	
9	4-3½x5	16.9	Conn	Carter	Wsths	C	3	105	30x3½	QDC	†695	695	.	.	1065	.	815

Model	Motor	S. A. E.	Ignition	Carbureter	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
LOZIER																	
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	.	....	1695	....	....	....	....
82	6-3½x6	36.0	Eismn	Rafld	G & D	D	3	132	36x4½	SS	.	....	2775	....	....	....	....
LUVERNE																	
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD		132	35x4½	SS	....	....	1500	....	....	....	....
MADISON																	
4	6-3½x5	23.4	Remy	Rafld	Remy	DD	3	120	34x4	SS	....	....	....	....	....	....	....
	6-3½x5	23.4	Remy	Rafld	Remy	DD	3	115	34x4	SS	1050-1150	....	....	....	....	....	....
	6-3½x5	23.4	Remy	Rafld	Remy	DD	3	124	34x4	SS	†1150 (1150 \ 1250)	1150-1250	....	....	....	....	....
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	36x3½	SS	695	....	....	. ..	....	....	....
MAJESTIC																	
M	8-3 x5	28.8	A.Kent	....	R & M	DP	3	125	32x4	....	†1500	1650	1650	....	....	....	....
A	8-3½x5	33.8	A.Kent	....	R & M	DP	3	135	35x5	....	†3000	3000	3000	....	....	....	....
MARION HANDLEY																	
6-40	6-3½x5	23.4	Wsths	Stmbg	Wsths	DD	3	120	32x4	SS	†1275	....	1275	....	....	....	....
6-60	6-3½x5½	29.4	Wsths	Stmbg	Wsths	DD	3	125	35x4½	SS	....	....	1575	2250	....	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bosch	C	3	136	34x4½	QD	††2100	3050	3100	....	4100	4500	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K-D	Simms	C	3	103	30x3½	C	620	635	....	865	985	....	....
McFARLAN																	
	6-4½x6	48 6	Bosch	Stmbg	Wsths	DP	3	136	35x5	QDR	3750	3800	3500	....	....	....	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Corser	U.S.L.	DD	4	132	34x4½	QDC	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22 5	Bosch	Corser	U.S.L.	DD	4	115	32x4	QDC	3400	Raceabout, 3250	..	..	....	..	..
METZ																	
25	4-3½x4	24	Dixie	A.W.T.	G & D	F		108	32x3½	C	545	545	....	..	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafld	Splitdorf	C	3	120	32x4	SS	1150	1150	....	....	....	....	300x
C-42	6-3½x5	29.4	Conn	Rafld	Wsths	C	3	127	34x4	SS	‡1425	1425	1460	1995	2175	2785	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1495	1495	....	....	....	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1840	....	1840	2490	2440	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Heinse	D	3	108	32x3½	SS	895	895	....	....	....	....	....
N-O	6-3½x4½	25.4	Heinse	Stmbg	Heinse	D	3	115	33x4	SS	1095	1095	....	....	1295	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	DC	565	....	....	....	965	....	....
M-4	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	DC	....	985	....	....	....	....	....
MOON																	
6-43	6-3½x4½	25.3	Delco	Rafld	Delco	DD	3	118	32x4	SS	‡1295	1295	....	....	....	....	1450
6-66	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	†1690	....	1690	1690	2350	....	....
MURRAY																	
70-T	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2500	....	2500	....	....	Chassis	2000
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafld	Wsths	C	3	128	34x4½	QDR	†1800	†1750	1750	2400	2350	....	....
Twelve	12-2½x4½	39.7	Delco	Rafld	Bijur	C	3	128	34x4½	QDR	†2200	†2150	2150	2800	2750	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	....	....	...	....	2200	....	....
OAKLAND																	
34	6-2½x4½	18.9	Delco	Marvel	Delco	C	3	112	32x4	SS	‡875	875	....	....	....	....	995 / 1020
50	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	34x4½	SS	....	....	1585	....	....	....	....
OLDSMOBILE																	
45	8-2½x4½	26.4	Delco	Johnson	Delco	C	3	120	33x4	SS	1295	1295	....	....	1850	....	1775
46	6-2½x4½	19.8	Delco	Johnson	Delco	C	3	112	32x4	SS	†1095	1095	....	....	....	....	....
OVERLAND																	
85-4	4-4½x4½	27.2	Conn	Tittn	A-Lite	C	3	112	32x4	SS	835	850	....	1250	1450	....	....
85-6	6-3½x4½	25.3	Conn	Tittn	A-Lite	C	3	116	32x4	SS	970	985	....	1385	1585	....	....
OWEN																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	..	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7	Bosch	Zenith	O-M	OM	..	136	35x5	SS	‡3950	†3950	3950	....	....	5000	....
PACKARD																	
2-35																	
2-25	12-3 x5	43.2	Bijur	Own	Bijur	DD	3	135 / 126	35x5	QDC	3050	3050	3050	4150	. .	4450	. .

*6-passenger. †4-passenger. ‡3-passenger

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DREXEL																		
R-30-35	4-3½x5	19.6	Bosch	Stmbg	Bijur	C	3	112	33x4	....	985	985	....	....	....	....	....
	4-3½x5	19.6	Bosch	Stmbg	Bijur	D	3	118	34x4	....	....	1650	....	....	....	....	....
ELCAR																		
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS	845	845	†845	...	....	....	....
ELGIN																		
	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	116	33x4	....	†985	985	....	....	....	....	....
EMERSON																		
Four	4-3½x4	22.5	A.Kent	Kngstn	....	D	3	110	30x3½	C	....	545	....	....	....	....	....
EMPIRE																		
45	4-3½x5	24.0	A-Lite	Stmbg	A-Lite	C	3	116	33x4	SS	....	960	....	....	....	....	....
60-R	6-3½x4½	25.6	Conn	Stmbg	A-Lite	C	3	120	34x4	SS	†1145	....	....	....	1625	....	....
70	6-3½x4½	25.6	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1235	....	....	....	....	....
ENGER																		
12	12-2½x3½	34.2	Wsths	Stmbg	Wsths	DP	3	116	32x4	SS	....	1295	....	....	....	....	....
4	4-3½x4½	21.7	A.Kent	....	....	C	3	106	32x3½	....	....	695	....	....	....	....	....
FIAT																		
55	4-5½x6½	42	Wsths	Zenith	Wsths	D	4	140	35x5	QDC	....	....	5500	....	..	6500	....
56	6-4½x6	45.9	Bosch	Own	Own	D	4	135	37x5	QDC	‡5350	5350	5350	....	....	....	....
FORD																		
T	4-3½x4	22.5	Own	{Holly Kngstn	....	D	2	100	30x3½	C	345	360	....	505	645	....	....
FOSTORIA																		
	4-3 x4½	14.4	Remy	Zenith	....	D	3	108	30x3½	C	....	695	....	....	....	....	....
FRANKLIN																		
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	32x4	SS	1800	1850	†1850	2650	2750	3000	...
GLIDE																		
6-40	6-3½x5	23.4	Wsths	Rafld	Wsths	D	3	119	34x4	SS	....	1250	....	....	1325	....	....
GRANT																		
K	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	112	32x3½	....	‡875	875	....	1100	1050	....	....
HAL TWELVE																		
	12-2½x5	39.7	....	Stmbg	Wsths	DP	3	135	34x4½	SS	2600	†2600	2600	....	....	4500	3500
HALLADAY																		
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	..	....	...
R	6-3½x5	23.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	..	....	....
HARROUN	4-3½x5½	16.9	Bosch	Special	Remy	C	3	106	30x3½	....	....	595	....	....	..	....	....
HAYNES																		
36	6-3½x5	29.4	Remy	Rafld	L-N	DP	3	121	34x4	SS	....	1595	....	....	2260	....	....
37	6-3½x5	29.4	Remy	Rafld	L-N	DP	3	127	35x4½	SS	†1725	....	1725	....	2390	....	....
40	12-2½x5	36.3	Delco	Rafld	L-N	DP	3	121	34x4½	SS	....	2095	....	....	2760	....	....
41	12-2½x5	36.3	Delco	Rafld	L-N	DP	3	127	34x4½	SS	†2225	....	2225	....	2890	....	....
HOLLIER																		
186	6-3 x4½	21.6	Remy	Stewart	A-C	C	3	116	32x3½	SS	....	895	....	....	....	....	....
178	8-3 x4½	28.8	A.Kent	Stewart	Aplco	C	3	116	34x4	SS	†1185	1185	....	....	....	....	....
HUDSON																		
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS	1650	....	1650	1950	2175	2925	....
HUPMOBILE																		
	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	119	34x4	SS	1185	1185	....	....	1735	....	....
N-U	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	134	35x4½	SS	....	....	1340	....	....	....	....
INTER-STATE																		
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	875	925	†940	....	....	....	....
JACKSON																		
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS	1395	1395	†1495	....	1995	....	1605
350	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	112	32x4	SS	....	1195	....	....	....	....	....
JEFFERY																		
Four	4-3½x5½	22.5	Dixie	Stmbg	Bijur	DP	3	116	34x4	SS	1065	....	1095	....	1260	....	1320
Six	6-3½x5½	29.4	Dixie	Rafld	Bijur	DP	3	125	34x4	SS	1435	....	1465	....	1630	....	1690
JORDAN																		
Sixty	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DD	3	127	35x4½	SS	1650	†1750	1650	2300	2350	3000	...
KING																		
E	8-3 x5	28.8	A.Kent	Ball	W. Lnrd	DP	3	120	34x4	SS	†1585	‡1585	1585	....	2150	....	....
KISSEL																		
642	6-3½x5½	31.54	Eismn	Stmbg	Own	DD	3	128	34x4	SS	....	1700	1900	....	2050	....	....
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	33x4	SS	†1295	1295	....	1735	2050	....	1735
Twelve	12-2½x5	39.7	Delco	Stmbg	Own	D	3	....	....	....	....	....	2250	....	..	..	2650
KLINE																		
638	6-3½x4½	25.3	Wsths	Rafld	Wsths	DP	3	120	34x4	SS	1175	1195	†1195	....	....	....	..
LEXINGTON																		
6-O-17	6-3½x4½	25.3	Conn	Rafld	Wsths	DD	3	116	32x4	QD	†1185	1185	....	1350	1350	....	....
6-P	6-4½x5½	40.8	A.Kent	Stmbg	Wsths	C	3	144 132	36x4½	QD	†2675	....	2875	.....	..	....	....
LIBERTY																		
6	6-3½x4½	23.4	Delco	Rafld	Delco	DP	3	115	32x4		†1195	1195	....	....	1795	....	..
LOCOMOBILE																		
R-7	6-4½x5	43.3	Eismn	Ball	Wsths	DD	4	139	37x5	QDC	†4750	*4600	4600	....	....	5600	....
M-7	6-4½x5½	48.6	Eismn	Own	Wsths	DD	4	142	37x5	QDC	*5400	....	5400	....	....	6500	....

PAIGE																		
6-38	6-3½x5	23.4	Remy	Rafld	G & D	D	3	117	32x4	SS	1175	1175	....	....	....	....	....
6-46	6-3½x5½	29.4	Remy	Rafld	G & D	D	3	124	35x4½	SS	....	....	1495	....	....	....	....
PARTIN-PALMER																		
20	4-3½x4½	15.6	Conn	Schebler	A-C	DD	3	96	30x3½	C	545	....	....	....	....	....	....
32	4-3½x5	19.6	Conn	Carter	Disco	DD	3	110	32x3½	C	....	695	....	....	....	....	....
PATERSON																		
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	32x4	C	†1095	1095	1095	....	....	....	....
PATHFINDER																		
2B-TC-2C	12-2½x5	39.7	Delco	Stmbg	Delco	DD	3	135	35x5	SS	....	....	3250	....	....	....	....
PEERLESS																		
56-2	8-3½x5	33.8	A.Kent	Special	G & D	DD	3	125	35x4½	SS	†1980	....	1980	2700	2840	3350	....
PIERCE-ARROW																		
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	36x4½	QDC	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	37x5	QDC	5100	5100	5000	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	38x5½	QDC	†6100	6100	6500	7800	....	....	....
PILOT																		
6-45	6-3½x5	23.4	Delco	Zenith	Delco	DP	3	119	32x4	SS	†1200	1200	....	....	....	....	....
PREMIER																		
6-B	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	†1895	....	1895	....	2900	3150	....
PRINCESS																		
4-36	4-3½x4½	22.5	Splitdorf	Schebler	Disco	D	3	108	32x3½	....	775	775	‡775	....	....	....	....
PULLMAN																		
424-32	4-3½x4½	22.5	Dixie	Stmbg	Splitdorf	D	3	114	31x4	SS	825	825	†825	....	....	....	....
REGAL																		
4-32	4-3½x4½	19.6	Heinse	Carter	Heinse	C	3	108	30x3½	DC	....	745	....	....	....	....	....
F	8-3 x4½	28.8	....	Johnson	Dyneto	C	3	115	33x4	SS	1200	....	....	....	....	....	....
REPUBLIC																		
E	6-4½x5	43.3	Delco	Rafld	Delco	C	4	133	36x4½	SS	....	†2950	2950	....	....	....	....
REO																		
M	6-3½x5½	30.4	Remy	Rafld	Remy	DD	3	126	34x4½	SS	....	†1250	1250	....	1750	....	....
R	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS	‡875	875	....	....	....	....	1025
ROAMER																		
R.A.	6-3½x5	23.4	Bosch	Stmbg	Bijur	D	3	127	34x4	SS	2150	1850	....	....	....	....	....
ROSS																		
C	8-3½x5	33.8	A.Kent	Zenith	W.Lnrd.	DD	3	130	35x4½	SS	‡1550	†1550	1550	....	....	....	....
SAXON																		
B-5-R	4-2½x4	12.1	A.Kent	Rebh	Wagner	DD	3	96	30x3	DC	495	....	....	....	....	....	....
S-4	6-2½x4½	19.8	Remy	Rafld	Wagner	DD	3	112	32x3½	SS	....	865	....	....	....	....	....
SCRIPPS-BOOTH																		
D	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	1460
G	4-3½x4	24.5	Remy	Zenith	Remy	C	3	110	30x3½	C	935	....	....	1450	....	....	....
SIMPLEX																		
5	6-4½x6½	45.9	Eismn	Nwcmb	Bosch	D	4	143½	37x5r	QDC	Chassis	6000	....	....	....	....	....
SINGER																		
17	6-4 x5½	38.4	Bosch	Rafld	Wsths	DD	4	136	35x5	QD	3500	†3500	3500	....	....	4600	....
STANDARD																		
8	8-3½x5	33.8	Splitdorf	Zenith	Aplco	D	3	127	35x4½	....	†1950	....	2000	....	....	3500	2500
STANLEY																		
Steamer	2-4 x6	....	....	....	....	..	..	130	34x4½	SS	‡2300	2200	2300	....	....	....	....
STEARNS																		
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	QDC	††1450	1450	....	2050	....	2900	2050
SK8	8-3½x5	33.8	Remy	Rafld	Wsths	DD	3	123	35x4½	QDC	†2150	....	2150	2900	....	3500	....
STEPHENS																		
60-65	6-3½x4½	25.3	Conn	Zenith	A-Lite	DD	3	115	32x4	....	‡1150	1150	....	....	....	....	....
STUDEBAKER																		
SF-4-40	4-3½x5	24.0	Remy	Schebler	Wagner	C	3	112	34x4	SS	‡985	....	985	....	....	....	1185
ED-6-50	6-3½x5	36.32	Remy	Schebler	Wagner	C	3	122	34x4	SS	‡1250	....	1250	1750	1700	2600	1450
STUTZ																		
R	4-4½x5½	36.1	Bosch	Stmbg	Remy	C	3	130	34x4½	SS	2275	†2550	*2550	....	....	....	....
SUN																		
17	6-3½x5	23.4	Remy	Rafld	Remy	DP	3	116	34x4	SS	†1145	1095	1145	....	1295	....	....
VELIE																		
28	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	115	32x4	SS	1115	1135	†1135	1750	1685	....	....
27	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	4	124	35x4½	SS	....	....	1600	....	....	....	{2190
WESTCOTT																		
S-17	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	1590	1590	1690	....	....	....	{2090
WHITE																		
GAH	4-3½x5½	22.5	Bosch	Own	Own	P	4	115	32x4	QDC	‡2650	2700	....	....	....	....	....
GED	4-4½x6½	28.9	Bosch	Own	Own	P	4	133½	36x4½	QDC	3750	....	3800	....	....	....	....
16-Valve	4-4½x5½	28.9	....	Own	L.N.	P	4	137½	37x5	....	....	....	4600	....	....	....	....
WILLYS-KNIGHT																		
88-4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	121	34x4½	SS	....	....	1285	....	1950	1950	....
WILLYS																		
88-6	6-3½x5½	29.4	Conn	Tltsn	A-Lite	C	3	125	35x4½	SS	....	....	1325	....	....	....	....
WINTON																		
33	6-3½x5½	33.7	Bosch	Rafld	Bijur	DD	4	128	36x4½	QD	2685	2685	2735	3600	3900	3900	....
48	6-4½x5½	48.6	Bosch	Rafld	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4500	4750	4750	....

*6passenger. †4passenger. ‡3passenger.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Tltsn" Tillottson, "Atzr" Atomizer, "Rebh" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myers. NOTE—"37½x5½r" means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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Gordon Adds $1,000,000

CANTON, OHIO, March 10—Stockholders of the Gordon Tire & Rubber Co. at a recent meeting authorized the increase of the capital of the company from $600,000 to $1,600,000. The increased capital is to take care of the increased business and provide for future additions and betterments. Several additions are under process of construction.

Hoosier Moves to Indiana

DUNKIRK, IND., March 8—The Hoosier Sub-Carburetor Co. has reorganized and will move to Indianapolis this month. The company has increased its capital from $10,000 to $25,000. The directors are: E. W. Steinhart, Indianapolis, president; George Black, Dunkirk, vice-president; C. W. Smalley, Dunkirk, treasurer; F. H. Hoover, Indianapolis, secretary, and J. W. Fudge, general manager. The company is reducing the price of its carburetor for Fords from $10 to $7.85.

Burgess to Make Batteries

MADISON, March 10—The Burgess Battery Co. has been organized, with a capital stock of $200,000, by the members of the C. F. Burgess Laboratories, Inc., Madison, one of the largest chemical engineering concerns in the Middle West. The new company will manufacture electrochemical products, dry batteries, flashlights and accessories. The Burgess industries have just taken occupancy of a new fireproof plant at 1025 East Washington Avenue, Madison, and will retain the old quarters on Pennsylvania Avenue. A branch plant will also be established in Canada. Officers of the new company are: President, C. F. Burgess; vice-president and sales manager, Duncan S. Keith; secretary, Ben S. Reynolds; treasurer, W. B. Schulte.

Securities Quotations

	March 10, 1917 Bid	Asked
★Ajax Rubber Co.	64	64½
★J. I. Case T. M. Co., pfd.	82	88
Chalmers Motor Co., com	25	30
Chalmers Motor Co., pfd.	—	—
★Chandler Motor Car Co.	103	104
Chevrolet Motor Co.	120	122
Fisher Body orp., com.	35	40
Fisher Body Corp., pfd.	94	96
Fisk Rubber Co., com.	75	85
Fisk Rubber Co., 1st pfd.	101	105
Fisk Rubber Co., 2nd pfd.	70	100
Firestone Tire & Rub. Co., com.	142½	145
Firestone Tire & Rub. Co., pfd.	107½	109
★General Motors Co., com.	123	123½
★General Motors Co., pfd.	90	90½
★B. F. Goodrich Co., com.	55⅞	56⅜
★B. F. Goodrich Co., pfd.	108⅞	110
Goodyear Tire & Rub. Co., com.	235	240
Goodyear Tire & Rub. Co., pfd.	107¼	109
Grant Motor Car Corp.	5	7
Hupp Motor Car Corp., com.	3½	4½
Hupp Motor Car Corp., pfd.	85	90
International Motor Co., com.	—	18
International Motor Co., 1st pfd.	—	72
International Motor Co., 2d pfd.	—	30
★Kelly-Springfield Tire Co., com.	57	58
★Kelly-Sp'gfl'd Tire Co., 1st pf.	91	95
★Lee Rubber & Tire Corp.	22½	23
★Maxwell Motor Co., Inc., com.	54¾	55½
★Maxwell M. Co., Inc., 1st pfd.	71	74
★Maxwell M. Co., Inc., 2d pfd.	35½	36
Miller Rubber Co., com.	259	264
Miller Rubber Co., pfd.	104½	106½
Packard Motor Car Co., com.	156	—
Packard Motor Car Co., pfd.	100	101
Paige-Detroit Motor Car Co.	37¾	38½
Peerless Truck & Motor Corp.	15	18
Portage Rubber Co., com.	166	171
Portage Rubber Co., pfd.	—	—
Regal Motor Car Co., pfd.	25	30
†Reo Motor Car Co.	36	36¾
★Saxon Motor Car Corp.	57½	57¾
Springfield Body Corp., com.	70	80
Springfield Body Corp., pfd.	110	120
Standard Mot. Construction Co.	7	8
★Stewart-Warner Speed. Corp.	81¼	82¼
★Studebaker Corp., com.	104	104½
★Studebaker Corp., pfd.	103½	105
Swinehart Tire & Rubber Co.	79	85
United Motors Corp.	40¾	40¼
★U. S. Rubber Co., com.	61¾	62¼
★U. S. Rubber Co., pfd.	108¾	109
★White Motor Co.	50	51½
★Willys-Overland Co., com.	36	36⅜
★Willys-Overland Co., pfd.	98	100

★At close March 10, 1917. Listed N. Y. Stock Exchange.
†Par value $10; others $100.

St. Louis Chevrolets for New York

ST. LOUIS, March 13—The Chevrolet factory here is being speeded up 50 per cent this month in an effort to supply 1000 cars to the New York office without lowering the planned output here, according to Russell E. Gardner, Jr., manager of the St. Louis plant. Gardner says that it was the plan to turn out 2000 cars here for local trade and when a request came from New York for 1000 cars to aid distribution point in reaching 27,000 cars for the month, he added that number. The local factory is the only one that does not receive car orders through the New York office.

Lee Sales Top $3,500,000

NEW YORK, March 8—Net sales of $3,346,761 are reported by the Lee Rubber & Tire Corp. in its annual statement covering the period ended Dec. 31 last. The cost of goods and all expenses were $3,340,860, leaving an operating profit of $246,901. The income from rentals, etc., totaled $4,162, making the total income $251,063. Out of this amount $13,726 was paid out for interest, discounts, etc., leaving $237,337 for dividends. The stockholders received $225,000, leaving a surplus of $12,337. The company has made some changes in the process of its manufacturing and is now producing not only the wrapped tread type of tire, but molded tires.

Coming—THE SHOW CALENDAR—*Events*

Canton, O.	Motor Car Co. showrooms; Mgr.: P. E. Moock, chairman of committee.	Mar. 7-14
Zanesville, Ohio	Muskingum Motor Club.	Mar. 10-17
Fort Worth, Tex.	Show	Mar. 12-14
Vancouver, B. C.	British Columbia Automobile Assn., Horse Show Building.	Mar. 12-17
Fargo, N. D.	North Dakota and Minnesota Auto Dealers Assn., Auditorium and Armory; Mgr.: W. M. Ball.	Mar. 13-16
Columbia, S. C.	Columbia Automobile Dealers' Assn., A M. Groves.	Mar. 14-17
Mason City, Ia.	Third Annual, Armory	Mar. 14-17
Davenport, Ia.	Coliseum Bldg., Tri-City Automobile Trade Assn.; Mgr.: C. F. Burmeister.	Mar. 14-17
Pittsburgh, Pa.	Salon, Schenley Hotel.	Mar. 14-17
Parsons, Kan.	Show, C. H. Moriarty, Mgr.	Mar. 14-17
Pittsburgh, Pa.	Automobile Dealers Assn. of Pittsburgh; Motor Square Garden; Mgr., J. J. Bell.	Mar. 17-24
Washington, D. C.	Carnival and Open House Week.	Mar. 19-24
Paterson, N. J.	Sixth Annual Paterson Automobile Dealers Assn., Auditorium; Mgr.: Robert A. Mitchell.	Mar. 19-24
Cedar Rapids, Ia.	Cedar Rapids Automobile Trade Assn., Coliseum.	Mar. 19-24
Denver, Col.	Mammoth Hall. H. F. Blackwell, Mgr.	Mar. 20-25
Trenton, N. J.	Trenton Automobile Trade Assn., Armory; Mgr.: John L. Brock.	Mar. 21-24
Raleigh, N. C.	City Auditorium, John Kelley, Mgr.	Mar. 21-24
Mankato, Minn.	Third Annual, Manakato Retail Automobile Dealers' Assn.	Mar. 22-24
Deadwood, S. D.	Fifth Annual; Mgr.: J. E. Nelson.	Mar. 27-31
Clinton, Ia.	Clinton Automobile Dealers Assn., Coliseum; management: Executive Committee.	Mar. 28-31
Stockton, Cal.	Second Annual San Joaquin Auto Trades Assn.; Mgr.: Samuel S. Cohn.	April 4-7
Milwaukee, Wis.	First Annual Used Car, Milwaukee Automobile Dealers, Inc., Auditorium; Bart J. Ruddle, Mgr.	Apr. 20-26
Spokane, Wash.	Interstate Fair	Sept. 3-8
Milwaukee, Wis.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15

General

Los Angeles, Cal.	Los Angeles to Salt Lake City, Utah.	April
Uniontown, Pa.	Universal Trophy and Stock Car Races, Uniontown Speedway Assn.	May 10
New York, N. Y.	Metropolitan Race, Sheepshead Bay.	May 19
Indianapolis, Ind.	Championship	May 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	May 30
Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-6
Chicago, Ill.	Championship	June 9
Cincinnati, O.	Race	June 23
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.	Championship	July 4
Tacoma, Wash.	Championship	July 4
Des Moines, Ia.	Championship	July 14
Kansas City, Mo.	Race	Aug. 4
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.	Championship	Sept. 3
Providence, R. I.	Championship	Sept. 15
New York, N. Y.	Championship	Sept. 29
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Oct. 6
Kansas City, Mo.	Championship	Oct. 6
Chicago, Ill.	Race	Oct. 13
New York, N. Y.	Race	Oct. 27

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MORE MONEY and Permanent Success for Dealers



The fact that Michelin Tires sell at moderate prices, although Michelins are recognized in every corner of the World as tires of the highest quality, means that sales come easily to the dealer who is lined up with

MICHELIN

But if you are looking ahead for permanent success the Michelin proposition means **more than just easy sales.**

It means **reputation.** It means not only success today but greater success tomorrow, because every Michelin user is a business ally to the Michelin Dealer.

That is why the Michelin proposition is the best proposition for the tire dealer who has real ideals and ambitions. Write us for particulars.

Michelin Tire Co.
MILLTOWN, N. J.

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Non-Gran Bushings are to a Car what high grade Jewels are to a Watch

A watch becomes erratic, loses time—in a word, becomes worthless—when its jewels become worn.

When the bushings of a car become only slightly worn, knocks, rattles, power loss and rapid crystallization of adjacent parts inevitably result.

And bushing wear in a car is a thousand times greater than jewel wear in a watch.

When buying your next car you will be wise then to carefully investigate this important matter of bushings.

For a car will stand up only as long as its wear-subjected parts—the bushings. When they wear out the car must be overhauled and new bushings substituted.

Builders of quality cars naturally use only the finest QUALITY BUSHINGS. They could not do otherwise and still make a car that would render longer service with less expense than ordinary cars.

For car life depends on bushing life, and bushing life depends on QUALITY.

NON-GRAN Bushings are the world's acknowledged QUALITY BUSHINGS. Nearly all manufacturers of quality cars use them.

High grade repairmen carry assortments of NON-GRAN cored bars from which they can make their BUSHINGS.

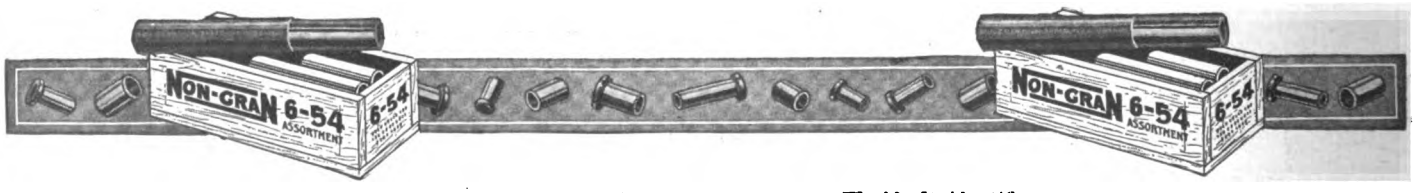
The next time your car is down, have your repairman replace all worn bushings with NON-GRAN Bushings. By so doing you will insure yourself against future overhauling expenses and greatly add to the resale value of your car.

Marmon, Stutz, Mercer, Locomobile, Stearns, Mack, Federal, Timken, Sheldon and scores of others all agree that NON-GRAN Bushings are best.

Should any salesman or repairman try to convince you that cheaper bearing bronze will do "just as well," be guided by the opinion of these experienced men who really know. Demand — insist upon — NON-GRAN. Its use will save you many dollars in future repair bills.

American Bronze Company
Berwyn - - - Pennsylvania

HIGH SPEED
NON-GRAN
BEARING BRONZE



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The Velie Six Has Gained An Enviable Leadership



NO light Six in America is better known. Velie pre-eminence has been gained by Beauty, Quality and Performance. In style, finish, power and economy, these cars are unsurpassed at *any* price. In fact it is the one low-priced car of high-priced features.

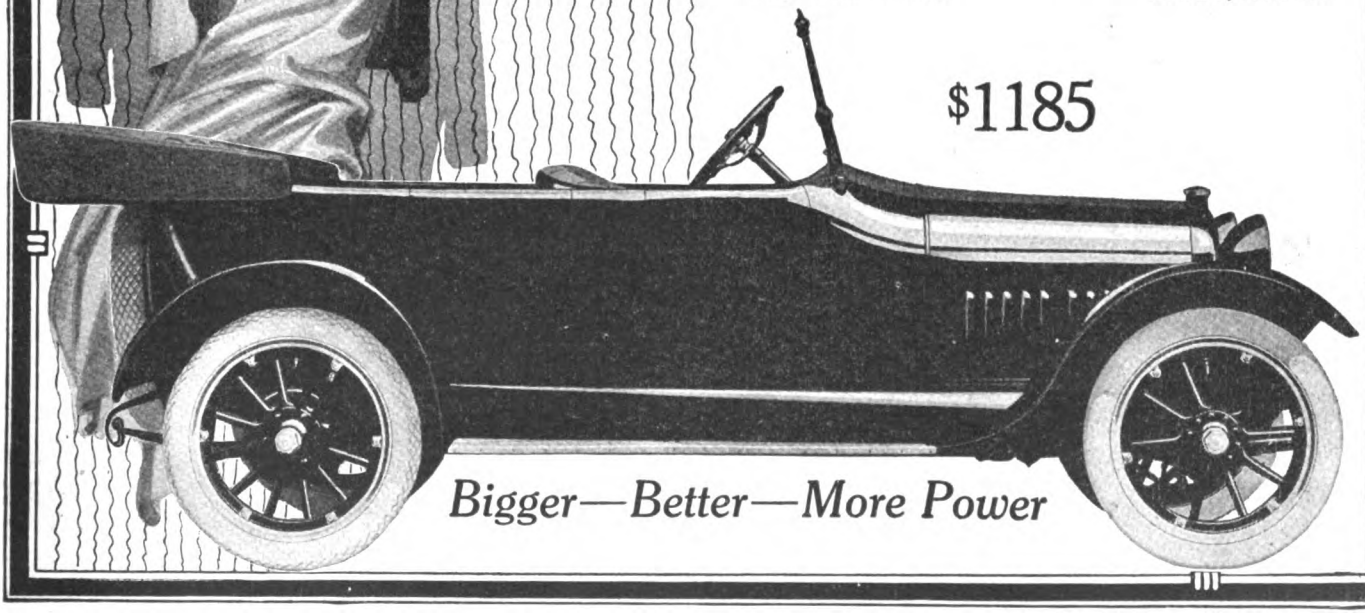
Velie Dealers are sharing the benefits of the Velie prestige. Today the Velie car is in demand in every market.

Eight Body Styles

Open and closed models give the Velie dealer a range to meet the demand of every prospect. With the famous Velie bodies, upholstered in genuine leather and curled hair, go the *special* Continental motor—Timken axles front and rear—multiple dry disc clutch—long, underslung springs—push button starter—everything in and on.

There should be a Velie Dealer in every territory. If yours is open write for our liberal proposition—or come to the factory.

VELIE MOTORS CORPORATION
115 Velie Place Moline, Illinois



Bigger—Better—More Power

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STEPHENS SIX

"The Car With Punch"

BUILT TO MEET EVERY EMERGENCY

Scientists, who have sought the sixth sense, should ride in the Stephens Six. In this powerful, sturdy, reliable car, they will find and experience it.

On slippery pavements, on narrow highways, on steep mountain roads and in the congestion of municipal traffic the owner of a Stephens Six enjoys a sense of security that is complete and all-satisfying. It is a feeling of confidence well placed, a freedom from irritating thoughts of delay, annoyance and danger.

YOU ARE SAFE IN THE STEPHENS SIX

In the Stephens Six are incorporated the reserve strength and the reserve power for the motoring crisis. The car is designed and constructed to square with Safety First principles. The materials are carefully tested and selected. The experimental models were sent through the mud of Southern Illinois and over the Kentucky hills to discover defects and mechanical weakness.

Not until the Stephens Six was without flaw, not until our engineers were convinced that the Stephens Six was safe and dependable was the car put upon the market to give superlative satisfaction and generate this sense of security.

When the mud is deep and the sand is heavy, when the grade is long and steep, when a sudden burst of speed is needed to avoid a collision, the motor of the Stephens Six responds with its reserve power. It is a faithful, willing servant, working smoothly, quietly and economically.

The frame and the chassis of the Stephens Six have reserve strength for the extraordinary strain. They are built to meet the one chance in a thousand, the one chance that often results in serious accident.

Every part of the Stephens Six is dependable. The starter starts. The brakes brake.

The Stephens Six gives double comfort, physical and mental, ease of body and peace of mind. It is a car of double stamina, material and ethical, strong and reliable as the company that builds it, a company with fifty-two years of successful manufacturing experience.

Two Models, Each $1225
Five-passenger Touring Car
Three-passenger Roadster

Our dealer proposition is most attractive. There is still some good territory open.

STEPHENS MOTOR
Branch of Moline Plow Co
MOLINE, ILLINOIS
Factory: Freeport, Ill.



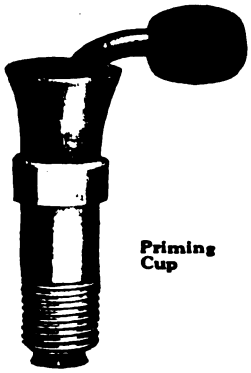
$1225
FREEPORT, ILL.

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ANNOUNCING

The New
BRITTON PRIMING CUPS
and
BRITTON DRAIN COCKS

VALUABLE IMPROVEMENTS IN EFFICIENT MOTOR EQUIPMENT



Priming Cup

LOW COST, GREAT DURABILITY AND DEPENDABILITY are predominating features of these new accessories.

Unusually small and compact, of solid construction, consisting only of valve seat and stem. Parts cannot become lost.

No efficiency lost through wear—always in working order.

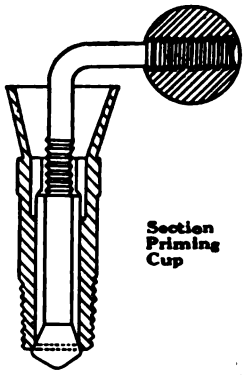
Openings cannot become obstructed with carbon or sediment—the action of valve stem keeping the aperture free.

Turning the stem with its conical seat keeps the valve ground—wear making the closure always tight.

The cone seat and stem screw threads make it self-locking—preventing the valve jarring open.

Further, owing to the conical seating of the valve, pressure cannot off-seat it, but closes more firmly.

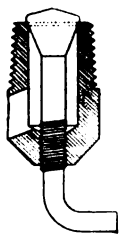
Their extremely *low price* and the unusual advantages they possess should convince manufacturers and users that there is nothing on the market to approach them.



Section Priming Cup



Drain Cock



Section Drain Cock

Write to us today.

PETER A. FRASSE & CO., Inc.

417-421 Canal Street **New York City**

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Thousands of Buyers

It's Easy to Sell the Chalmers

The Chalmers is in demand in every county, every town and every city in the United States. Potential buyers are everywhere. It pleases all by its beauty, its reliability, its performance and its price.

The Farm Market

There are over 2,000,000 farmers in the United States who are prospects for this Chalmers. Perhaps this estimate is too conservative. There may be more.

These farmers are everywhere. No county, no community is without them. You know the type well. Conservative. Substantial. The kind of man that looks for sensible price and sound value.

To locate these buyers is easy. Just a little search. A little digging. A little analysis reveals scores of them.

The Chalmers is a farmer's car. Likewise it is a great car in the small towns. No less it is a big winner in the great cities.

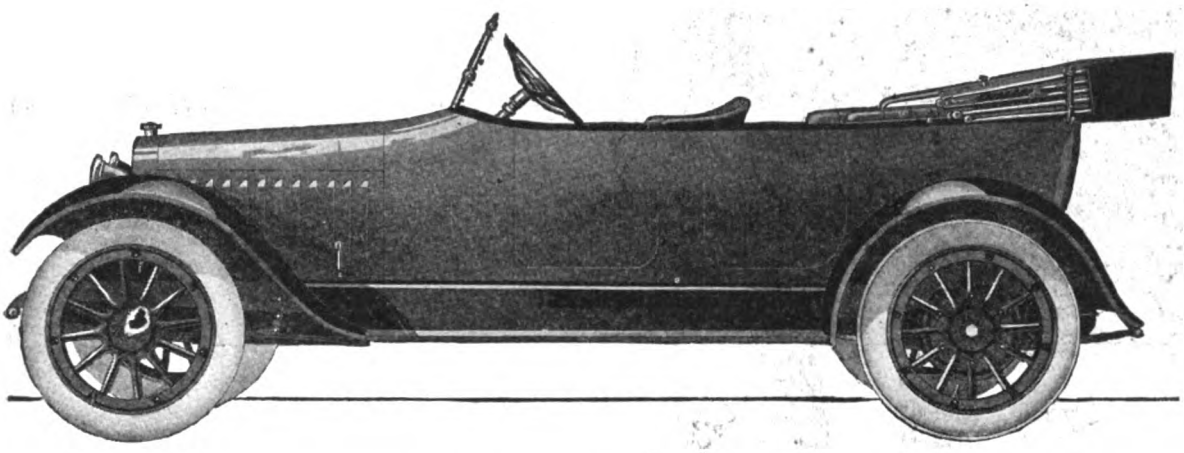
The Proof of the Chalmers

Scores of gold, silver and bronze trophies adorn the reception room of the Chalmers factory. They were won for speed, for hill climbing, for endurance and economy.

CHALMERS · MOTOR · CO. Detroit, Mich. U.S.A.

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for the Chalmers Car



Just recently, in 1916, Chalmers led in the Pike's Peak hill climb, carried off the Giant's Despair climbing classic, created a new record from Chicago to New York, and won many other events.

Best Dealer Proposition

The Chalmers offers today an unequalled dealer opportunity. Chalmers future is big with sure success. The eyes of the entire motor-car industry are on the Chalmers. Interesting dealer information may be had for the asking.

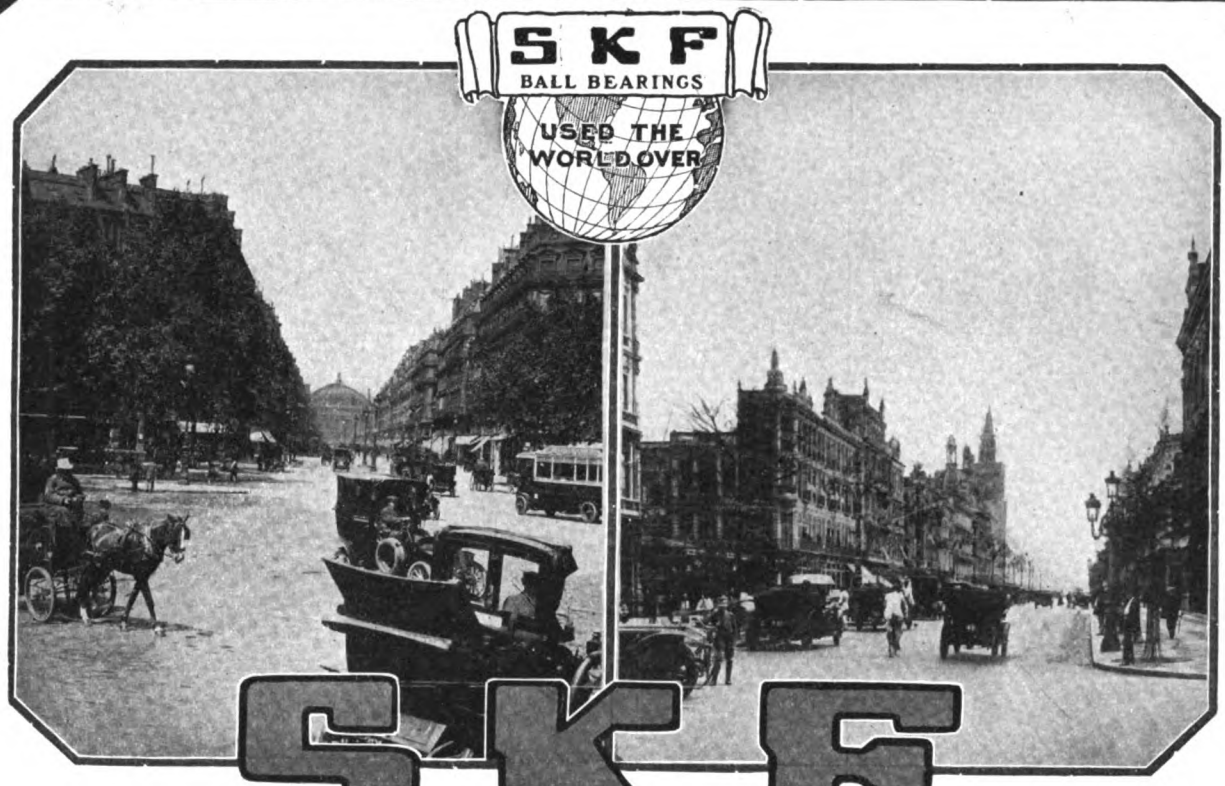
Present Prices

Five-passenger Touring - - -	$1250	Seven-passenger Sedan - - -	$1850
Seven " " - - - - -	1350	Seven " Limousine - - -	2550
Three " Roadster - - -	1250	Seven " Town Car - -	2550

(All f.o.b. Detroit)

CHALMERS MOTOR COMPANY, DETROIT, MICHIGAN

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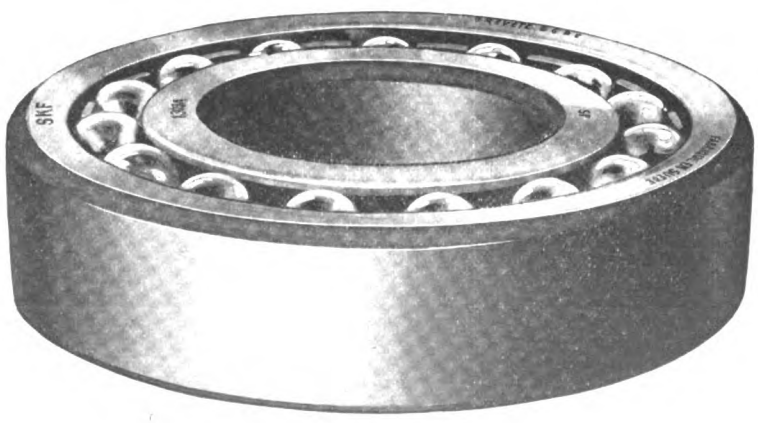
SKF

Used the World Over

In the most remote corners of the world—whether on the perfect boulevards of Europe or the rugged roads, hills and vales of America, Canada, Australia, Asia or Africa—S K F Ball Bearings have established a reputation for "Quality and Service."

Made of Swedish Crucible Steel of the highest analysis—of efficient design and manufactured under the scrutiny of our skilled and thoroughly equipped organization, S K F Ball Bearings are giving long, hard dependable service—because of the rigid control and uniformity of materials used in their manufacture.

HARTFORD **SKF BALL BEARING CO.** CONN.



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Do King Dealers Prosper?

Read what Mr. Snyder, of Spokane, has to say on that subject

DEAR SIR:

I heard that you were at the Chicago show and that you were looking over the King line. Sorry that I did not meet you there as I certainly would like to have had a talk with you.

I have been in the automobile business almost six years in Spokane, and during that time have handled the _____and_____and a little over a year ago I took on the King, and I want to tell you that I have made more money in one year on the King than the other five put together. After cleaning up on our_____stuff which was the last of June, we sold *sixty-eight* Kings, twenty-three of them in the month of December. One thing you can rest assured it will not break you on service after you sell the cars. We have not spent to exceed $150.00 for service on all the Kings we have sold, and you can look into the matter to your heart's content as to the kind of service that we give.

If you are considering the King proposition, I would be pleased to have you come to Spokane and have a talk with my King owners just to convince you that the car is even more satisfactory in the hands of the owners than I can express to you on paper.

Hoping that you will join the King family in the near future, and assuring you that there is no praise too high for the King, I remain,

Sincerely,

E. B. SNYDER,
Snyder Motor Car Company.

Feb. 14, 1917.

There may be some territory open in your vicinity

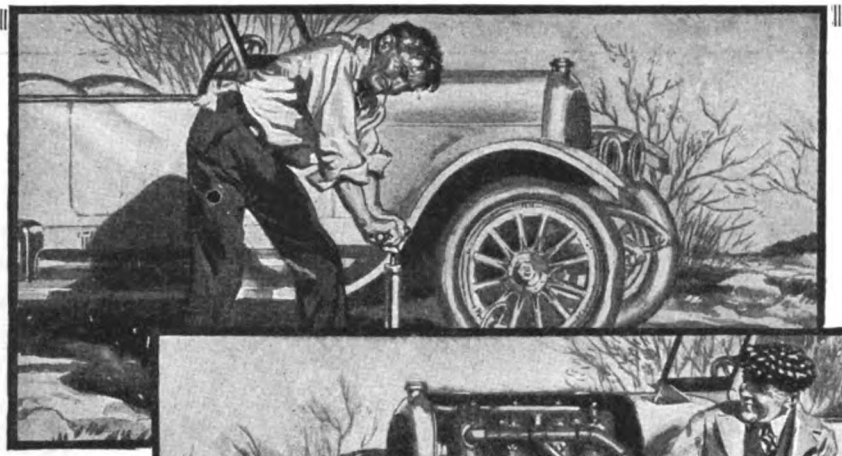
Eight Cylinder Model EE, Sixty Horse Power

7-Passenger Touring . . $1585 — 7-Passenger Sedan . . . $2150
4-Passenger Foursome, $1585 — 3-Passenger Roadster, $1585

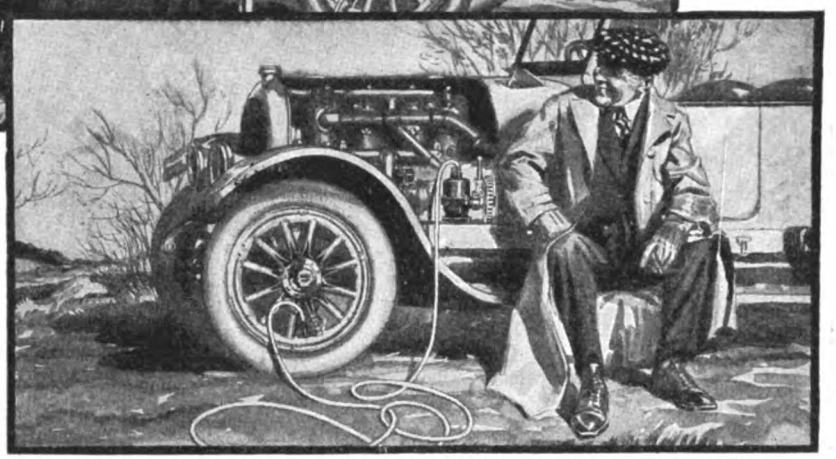
Prices F.O.B. Detroit

King Motor Car Company .·. Detroit

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Pumping the old way —hard dirty work



With a Cassco Tire Pump—your engine does the work

No More Back-Breaking Work
Your Engine Does Your Pumping

Ever get out into the boiling sun or pouring rain to pump up your tires with a hand-pump? You have to take off your coat and labor like a slave for ten or fifteen minutes. That ruins your clothes and your temper.

It's not efficient either. You cut the job as short as possible, and so your tires are not properly inflated. Tire manufacturers state that tires will give 25%, 50% and even 100% more mileage if kept properly inflated; that short mileage due to underinflation costs you $30 or $40 a year.

You don't need to do back-breaking work with a hand-pump every time your tires need pumping. For little more than the cost of a hand-pump, for a small fraction of what underinflation costs you every year, you can buy a *Cassco Engine-Driven Tire Pump.*

Saves energy, time, tires

The Cassco Engine-Driven Tire Pump saves your energy, your time and your tires.

It pumps up your tires to standard pressure quicker and better than you can possibly pump them by hand—or with any other engine-driven tire pump. This means about 50% extra mileage. With a Cassco Engine-Driven Tire Pump you can easily keep your tires properly inflated all the time.

99.2% factory built; not assembled

The Cassco Pump is *not assembled;* it is actually *built.* 99.2% of the pump is manufactured in the West Side Foundry Co. shops, one of the largest manufacturers of grey iron castings in the United States. Only hose, the gauge and two small stampings are purchased outside. Every part is made of the best possible material. We save more than 25% in manufacturing because we do not have to pay profits on various parts to several manufacturers. You get the benefit of these savings.

Designed by expert engineers; easy to install

The Cassco Pump was designed by expert mechanical engineers. It is simple and scientific in design. It takes up little space. It is easy to install. A motorist can attach it himself. Once in place, it is always ready for service. With one easy motion of your hand you can mesh or unmesh the gears. It requires no attention except occasional oiling. Its few, strongly made parts are never out of order.

The Cassco Pump will inflate a 34 x 4 tire to 80 lbs. pressure in 1½ minutes. Smaller tires take proportionately less time.

Dry air; no oil spray

The air from the Cassco Pump is dry and clean. The new Cassco design of piston and cylinder prevents oil spray. Oil ruins tires.

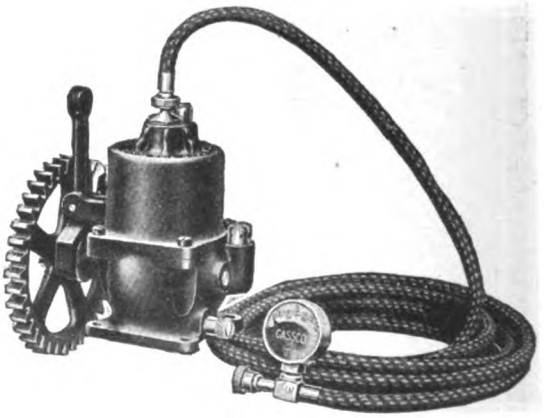
In ordering specify make, year and model of your car. Put a Cassco Pump on your car today.

Dealers—Send your orders in early. Our 1917 proposition is attractive. A national advertising campaign is increasing the demand for this efficient tire pump. This advertisement appears in the Saturday Evening Post.

Complete with all fittings. Easy to install on any car. **$10**

Ford Special $8

Complete with all fittings. Easy to install. Same quality and efficiency as standard size pump.



***Sales Department*—EDWARD A. CASSIDY CO., Inc.**
Madison Avenue at 40th Street
***Manufacturers*—THE WEST SIDE FOUNDRY CO., Troy, N.Y.**

CASSCO TIRE PUMP

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"Daddy, don't forget the MARTINKIT!

Remember, I hurt my finger last time"! ~

THIS MARTINKIT makes an appeal to every motorist in the land. In these days of liberal education everyone knows the danger of infection even from the slightest scratch unless proper precautions are taken.

WIDELY ADVERTISED, a general demand is rapidly developing.

JOBBERS AND DEALERS are well taken care of by us. We supply attractive displays—make prompt deliveries—and offer very attractive terms.

A VERY SMALL INVESTMENT is necessary to handle this—it moves fast and keeps your money busy.

EVERY KIT sold sells two more, and a display in your place will sell the kit to every customer who values necessary and sensible precaution.

THE PRICE is only $2.00 a kit.

WRITE AT ONCE for unusually profitable terms.

The Martin Auto Accessories Corp.
Rochester, New York

Distributors

Hughson & Merton, Inc.,
580 Golden Gate Ave.,
San Francisco, Cal.
Distributors for the Pacific Coast.

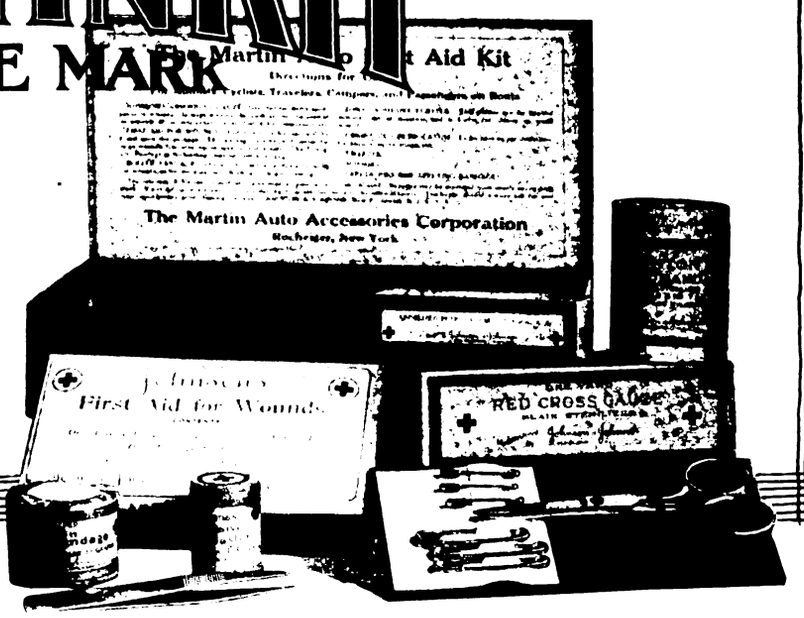
Bacrog Accessories Co.,
Richmond, Va.,
Distributors for Virginia, North Carolina and District of Columbia.

The Martin Auto Accessories Corp., O. L. Butler, Mgr.,
Baltimore, Md.
Distributors for Maryland.

The Banner Tire & Supply Co.
Euclid and East 19th Sts., Cleveland, Ohio.
Distributors for Cleveland.

Stokes Auto Accessories Corp.,
2260 North Bancroft St.,
Phila., Pa.

MARTINKIT
FIRST AID
TRADE MARK



Here is a picture of the Kit, which contains everything needed for treatment of cuts, scratches, burns, sprains, and even serious wounds.

Compactly packed in a small (8¼"x4¼"x1¾") box, it is easily carried in the door pocket of car.

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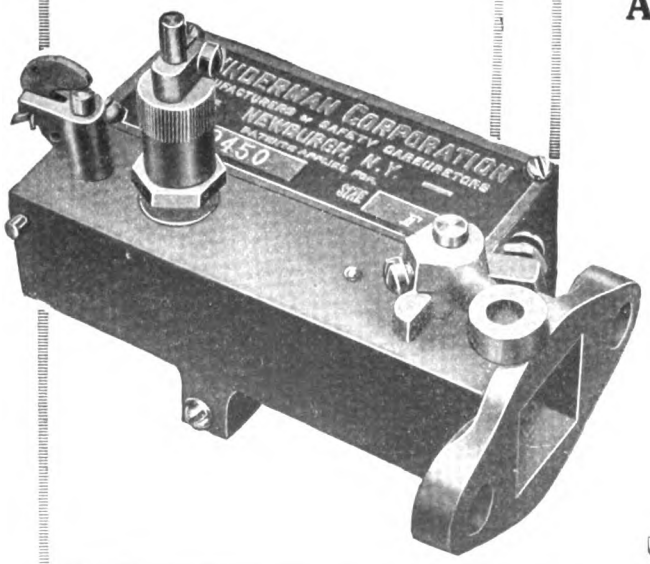
SUNDERMAN
Vacuum Carburetor

$5

F. O. B. Newburgh $6.50 for other than Ford or Metz

Car Owners:

Get your order in at once —put the Sunderman Vacuum Carburetor on your car for your Spring driving.



Gives More Power with a LEAN Mixture

Ponder over that statement—"more power with a LEAN mixture." It expresses briefly the superiority of the Sunderman Carburetor, and furnishes to car owners, dealers, engineers and manufacturers the basis of all our claims.

Because the Sunderman wrests from every tiny particle of gasoline the last atom of energy and makes it work for you in driving the car. It does it by breaking up these particles more minutely than has ever been done before, and changing them into lusty, driving *power*—without wasting any of it through *burning* it instead of exploding it.

Therefore a given amount of gasoline will give more power—we confidently assert *30 to 50% more.* It will save on any grade of fuel, and on high-grade gasoline will make records that will surprise you.

A Simple Statement of Our Claims

Saves Gasoline, Gives More Power, Increases Mileage, Insures Easy Starting, Adds Flexibility, Decreases Gearshifting, Assures Safety, Picks Up Quicker, Climbs Hills Like a Scared Rabbit

Dealers:
Our Advertising makes the ***demand***
Our Carburetor Makes Good
Get our Proposition at once

Sunderman Corporation
9 Chambers St. Newburgh, N. Y.
Western Sales Office, 403 Kresge Bldg., Detroit

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A Tribute to Superiority

Within the short period of six weeks since the New York Automobile Show (and only three weeks after the Chicago Show) contracts have been closed with dealers for MORE THAN ONE-QUARTER OF THE ENTIRE OUTPUT OF THE *AMERICAN SIX* FOR THE ENSUING YEAR.

These contracts have been entered into with automobile merchants of standing and responsibility whose applications for the agency representation of the AMERICAN SIX are in themselves a marked tribute to the superiority of this uncommon car.

SPECIFICATIONS IN BRIEF:

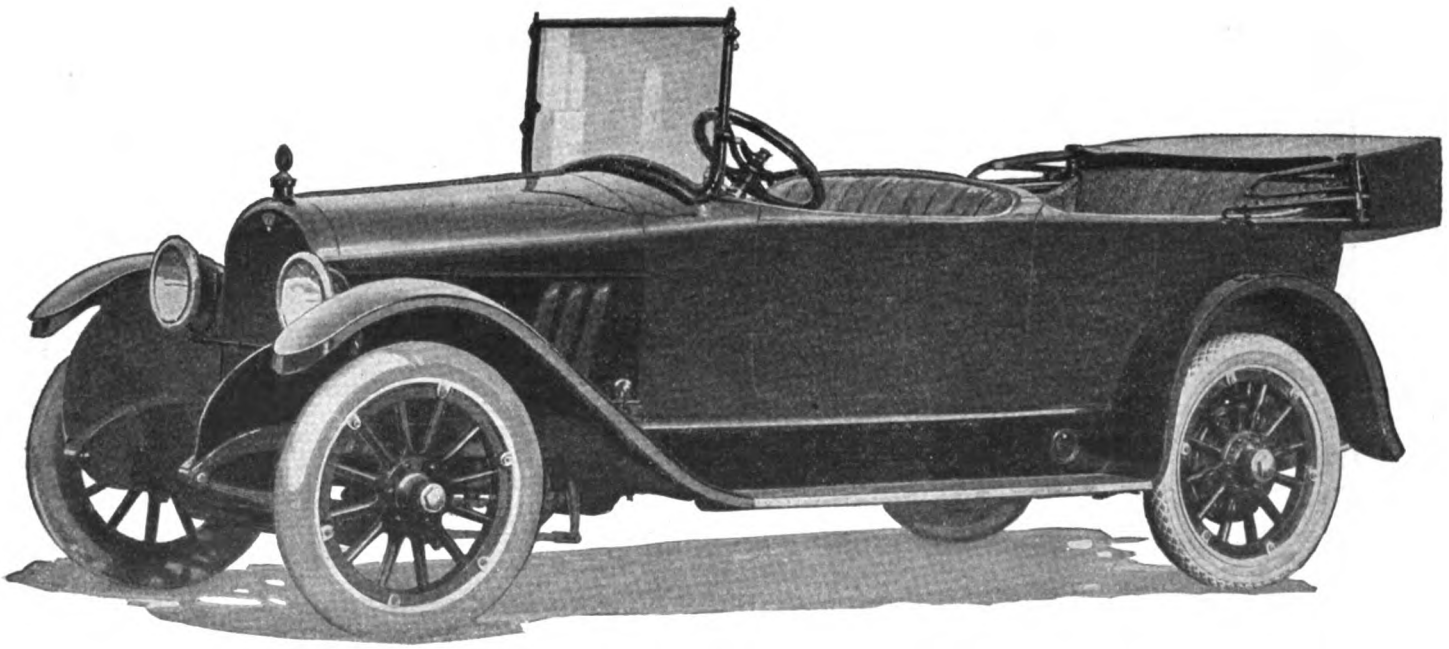
Power Plant—45 H.P. 3″x5″ motor, cast en bloc, upper half crankcase aluminum, three-point suspension, water completely around each cylinder and each valve seat, helical gears, Zenith Carburetor, Gray & Davis Electrical system, Willard battery. Size of valves, 1 9/16″. *Clutch*—Borg & Beck three dry-plate discs. Selective sliding gear, three speeds and reverse. *Axles*—front, one-piece drop forged I-beam; rear, three-quarter floating, spiral bevel gears, gear ratio 4 5/12 to 1. *Springs*—semi-elliptic, front, 38″x2″, rear 52″x2″; Hotchkiss drive. *Wheelbase*—122″, *tread* 56″, *wheels* 32″x4″. *Equipment* includes engine-driven tire pump and motometer. All dash instruments are assembled on one plate, making a drivable chassis.

ANNOUNCEMENT

To Eastern Dealers—On account of the location of the American Motors plant at Plainfield, N. J., deliveries of the AMERICAN SIX to Eastern dealers are guaranteed REGARDLESS OF FREIGHT CONDITIONS. Dealers in this territory who desire to ensure their supply of cars for the coming season are advised to communicate immediately with us.

AMERICAN MOTORS CORPORATION

Plainfield, New Jersey, and New York



AMERICAN SIX $1285

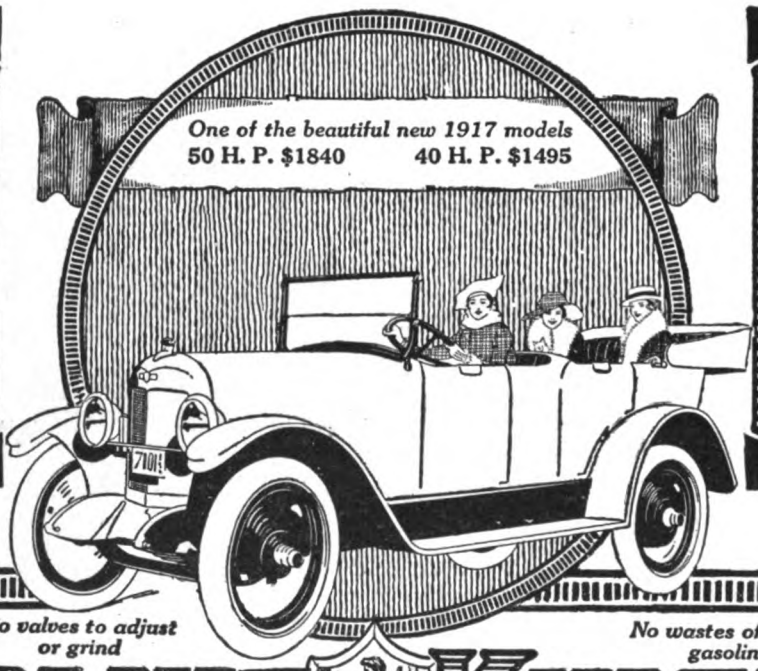
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NOISE

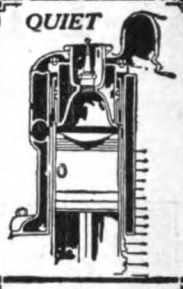


"Poppet-Valves" Cams noisily knock them open. Springs slam-bang them shut. Used in all motors except the Knight.

One of the beautiful new 1917 models
50 H. P. $1840 40 H. P. $1495



QUIET



"Sliding-Sleeve" Valves
Two motor-driven sleeves noiselessly glide up and down operating valves.

No valves to adjust or grind

No wastes of costly gasoline

MOLINE-KNIGHT

Carbon is its Friend!

In other motors carbon causes 4-5ths of all carburetor and ignition troubles besides necessitating frequent valve-adjusting and expensive valve-grinding.

Motor-driven, *silent sliding sleeve-valves*—with large gas passages—are used in the Moline-Knight. There are no valves noisily knocked open by cams and slam-banged shut by springs.

Carbon polishes these sleeve-valves smooth as glass. They operate more quietly and with less friction as more carbon collects.

Carbon *clogs* the spring valves in other motors. Specks of it deposit on valve-seats. Springs can't force the valves to seal tightly. Costly gas escapes. "Loss of compression," sluggish pick-up and power irregularities follow.

But in the Moline-Knight, after each 1,000 miles, *even less gas is being used,* while pick-up, reserve power, smoothness and flexibility are ever increasing.

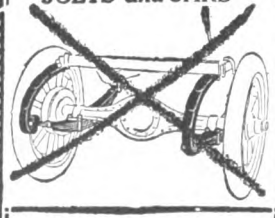
This is a motor which, even when new, gives 14 to 16 miles on gas, has a flexibility of 2 to 50 miles per hour on high, accelerates like a flash and has more power than you need.

Add, to such advantages, *"three-point BODY suspension,"* which, with a long, *cross-wise* rear spring gives what ALL concede is the EASIEST-RIDING CAR ON EARTH!

We guarantee to prove this—and the more cars you've ridden in the greater your astonishment, we promise. *Tire mileages are also increased 25%. Body rattles are prevented. Doors never stick.*

So, if you want a car containing the most trouble-free mechanism ever built, with an ever-silent, smooth, vibrationless motor which after 60,000 miles of use *is just in its prime*—a car that rides without jolt or jar even when speeding over bad roads—a car which it costs very little to run—yet, withal, a car of beautiful lines, luxurious finish and a full match for all late models in 1917 equipment—there's just one car to buy. And that is a Moline-Knight—at $1495 or $1840.

JOLTS and JARS



Springs at the sides, even with shock-absorbers, make a car HARD-RIDING. The MOLINE-KNIGHT does not use this construction.

And, Mr. Dealer, that's the kind of car to sell!

A car on which the "free service" is almost nothing—a car whose owners become even *better* satisfied after each year of use—and a car that's *easier-riding* than any other car made. Get our proposition. *It can't be beat!*

Moline Automobile Co., East Moline, Ill.

Model "C"—40 H. P.

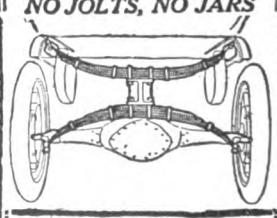
5-Passenger	$1495
4-Passenger Club Roadster	1495

Model "G"—50 H. P.

5 and 7-Passenger	$1840
4-Passenger Club Roadster	1840
7-Passenger Springfield Sedan	2440
4-Passenger Coupe	2490

All prices F. O. B. Factory

NO JOLTS, NO JARS



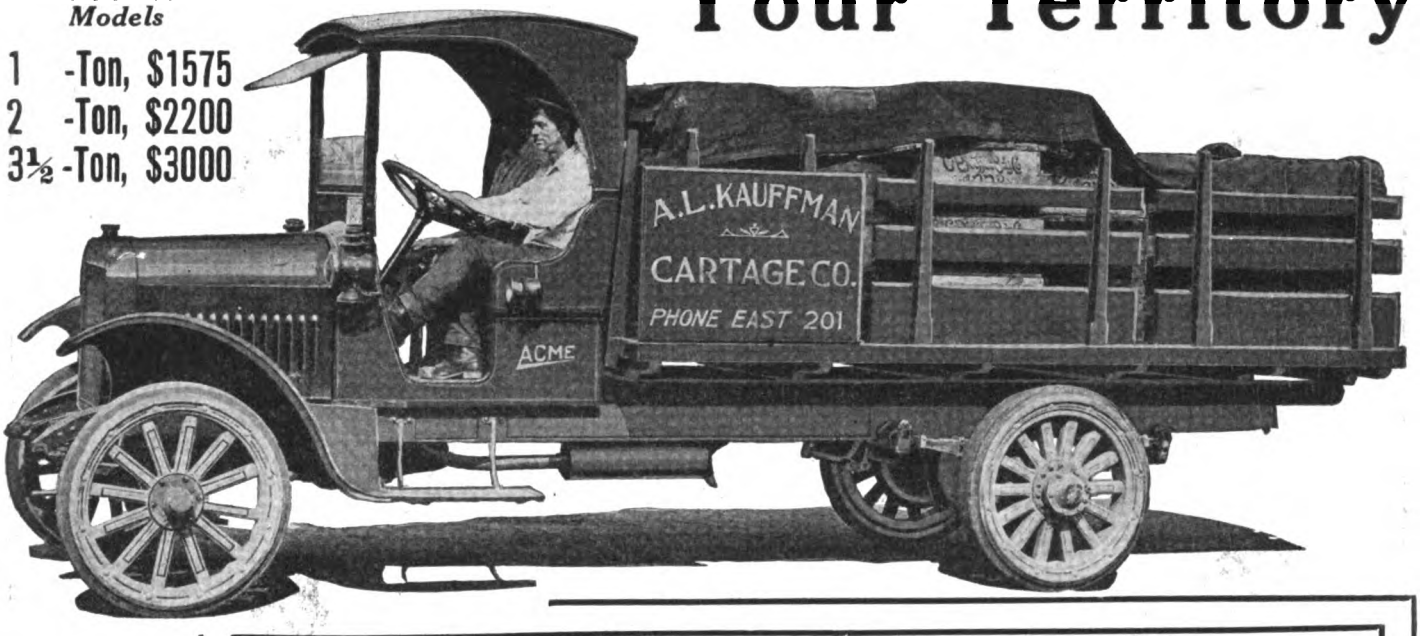
This cross-wise spring, unshackled at the left, makes the MOLINE-KNIGHT the easiest-riding car on the market. WE GUARANTEE TO PROVE IT.

Digitized by Google

ACME Bigger-Business Plan May Yet Be Open in Your Territory

Three Acme Worm-Drive Models

1 -Ton, $1575
2 -Ton, $2200
3½ -Ton, $3000



ACME
THE TRUCK OF PROVED UNITS

Wire or Write to Know!

Act immediately to know if **you** can seize this great opportunity to increase your truck sales and profits. Keen dealers who already have grasped our money-making offer, now are making tremendous gains in business. This is no ordinary agency proposition. Let us give you specific facts and figures. Send for them today.

Acme Trucks Are Sure Sales-Makers

The big, powerful Acme Trucks are the trucks your "prospects" **know,** for Acme proved units, such as Continental Motor—Timken Axles, Bearings and Worm-Drive, etc., are acknowledged to be supreme units of truck construction. Your prospects can actually **see the service** in the Acme. The Acme practically sells itself.

Continental Motor

Timken Axles and Bearings

Timken Worm-Drive

And all other units of equal high grade.

Rush your request for our special plan. We **concentrate our advertising in your local papers!** That is only one feature of Acme co-operation. Here is the way to bigger, faster sales—bigger, quicker profits. Send the coupon today.

Cadillac Auto Truck Co.
73 Mitchell Street, Cadillac, Michigan

Rush This Coupon for Plan Details

Cadillac Auto Truck Co.,
73 Mitchell St., Cadillac, Mich.

Please send your book, "A Pointer To Profits," illustrating and describing ACME Trucks and their proved units; also, furnish performance facts secured from owners showing gas economy, low upkeep, etc. Interested in..... ton capacity. Now using.....

Name .....

Address .....

Business .....

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Men Who Know



Manufacturer



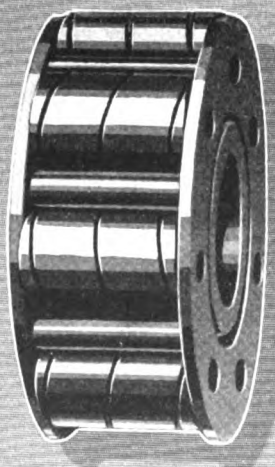
Engineer



Sales Manager



Distributor




Service Manager

Say

Manufacturer

"Our determination has been to make a *good* car. The success of the Overland has been due to the fact that we do make good cars.

The Overland is good because every part of it is good. And the Hyatt Roller Bearings which are a part of it measure up to the high standard we have established, in every particular."

THE WILLYS-OVERLAND CO.,
John N. Willys,
President.

Engineer

"Our aim has been to make the Mitchell the car of utmost efficiency. Realizing that a car is no better than its weakest part, great attention was given to the designing of this car from the most important part to the minutest detail.

In giving consideration to bearings for certain locations we found that Hyatt Quiet Roller Bearings filled our every requirement. They have been used for years and the service they have given has only confirmed us in our choice."

MITCHELL MOTORS CO., INC.,
John W. Bate,
Chief Engineer and
General Factory Manager.

Sales Manager

"In marketing Paige Motor Cars our endeavor is to completely satisy the user.

Naturally, the less trouble he is caused and the less attention required, the greater he is pleased.

For that reason, we have found Hyatt Roller Bearings an asset in making sales, and a continual source of satisfaction afterwards.

Hyatt Bearings are just one of the many reasons why Paige Motor Cars satisfy."

PAIGE-DETROIT MOTOR CAR CO.,
H. Krohn,
Sales Manager.

Distributor

"We find that our Hudson owners recognize and appreciate the quiet operation of our transmission, of which your Bearings are a part.

We are always ready to give service to owners. Yet the carefree, dependable performance of Hyatt Bearings which require so little attention, is appreciated by both owners and ourselves.

They are a sales asset to us because they are known to require little or no attention and to last almost indefinitely."

THE HUDSON MOTOR CAR CO. OF N. Y., INC.,
Harry S. Haupt,
President.

Service Manager

"Through my connection with the various automobile houses in Chicago, distributing such cars as the Jackson, Empire, Reo, and others, I have gained a practical first hand knowledge of motor car bearings, which convinces me of the superiority of the Hyatt Flexible Roller Bearings.

I know from experience that the Hyatt Quiet Bearings are the kind of bearings which prevent annoyance, save time, trouble and money—and satisfy the user."

RALPH TEMPLE AUTOMOBILE COMPANY,
A. B. Ferdinand,
Service Manager.

The Roller Bearing for Automobiles

HYATT QUIET

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Put "Pep" in Your Customers' Cars

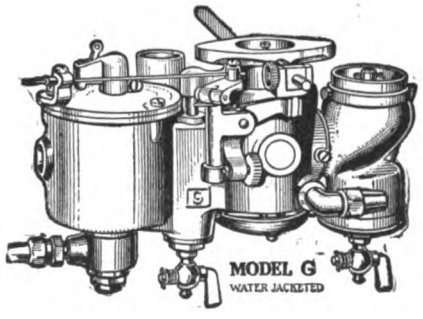
Pur-r-r-r-r-r-r-r-r! You know that rhythmical hum indicating eager power and velvety smoothness—with every cylinder doing its work with a will. It's the performance

of any good, modern motor, equipped with a

RAYFIELD CARBURETOR

It has a wonderful faculty of transforming low test gasoline into a powerful mixture. There's no trouble on long or high climbs.

Rayfield gives the range to idle or speed with a standard adjustment. It gives quick starting and pick-up, and guarantees 20 to 50 per cent greater mileage per gallon.

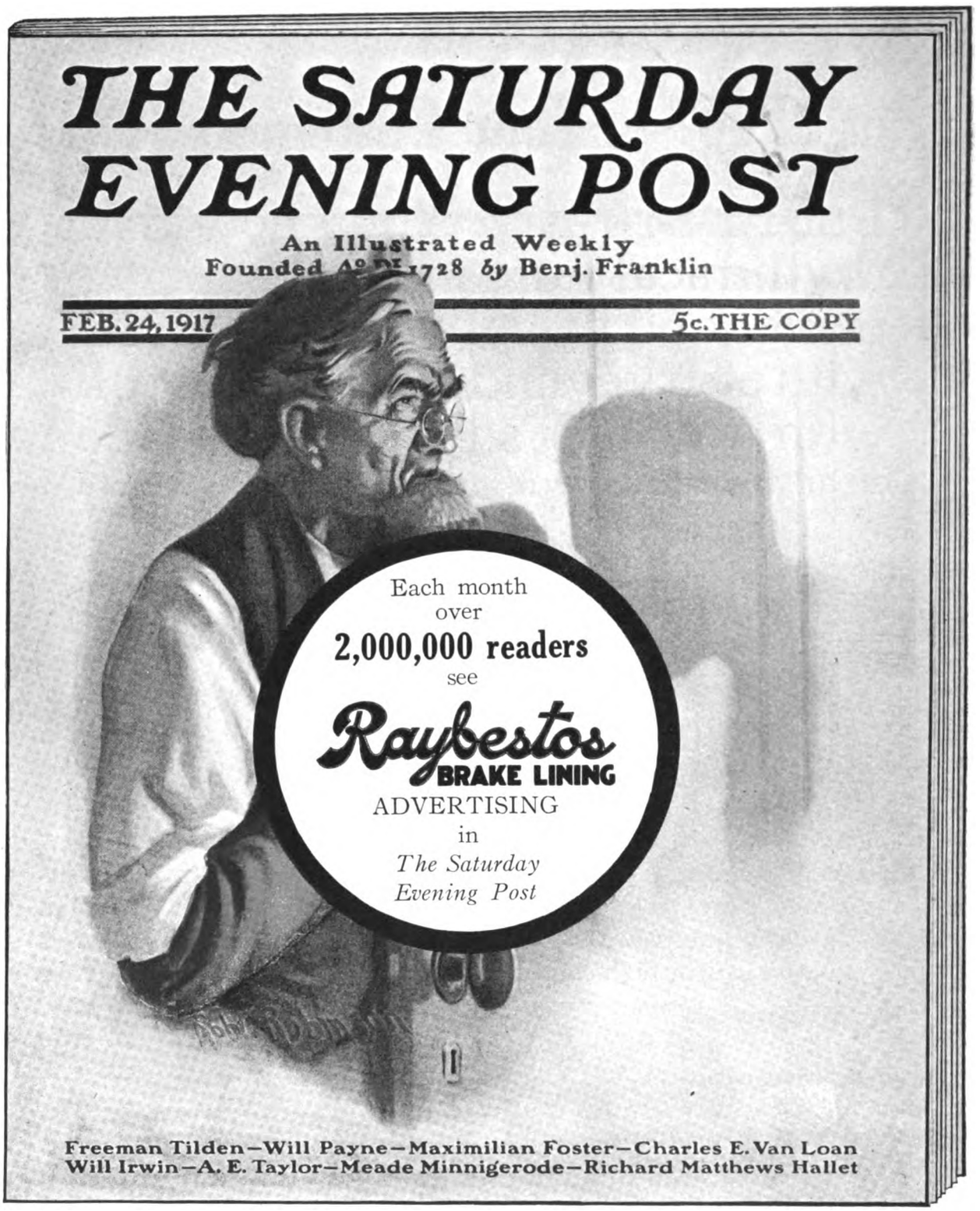


We authorize all Rayfield dealers to sell on this unconditional guarantee: If the purchaser is not absolutely satisfied after running his car 30 days, the carburetor is to be taken back and money refunded without question.

We stand back of every dealer who offers this broad guarantee.

Findeisen & Kropf Mfg. Company
2101 Rockwell St., Chicago
BRANCH
1140 Michigan Ave., Chicago

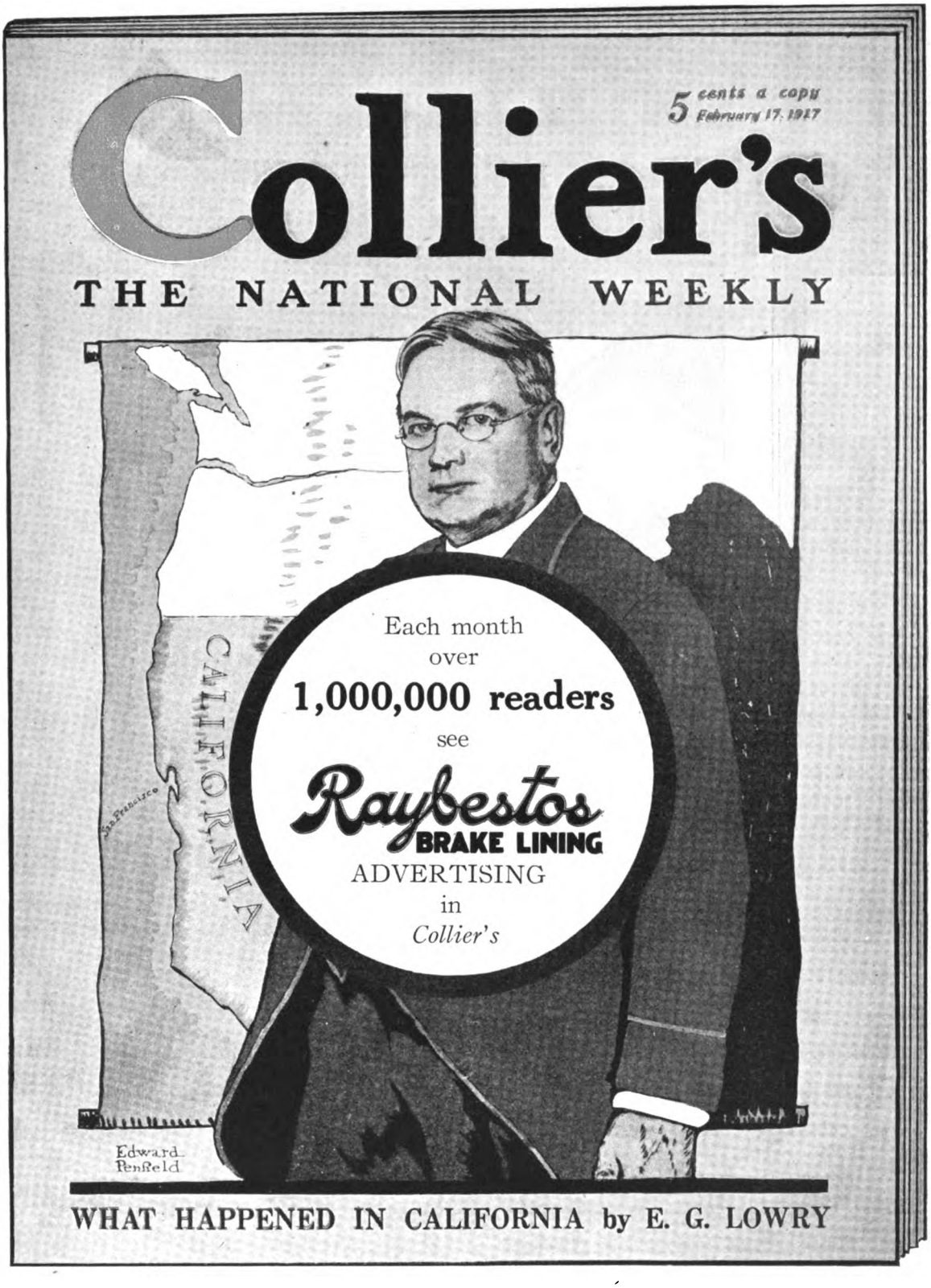
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Creating a

For the brake

Digitized by Google



Big Demand

lining that wears

When writing advertisers please mention Motor World—It identifies you

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The Summer Campaign

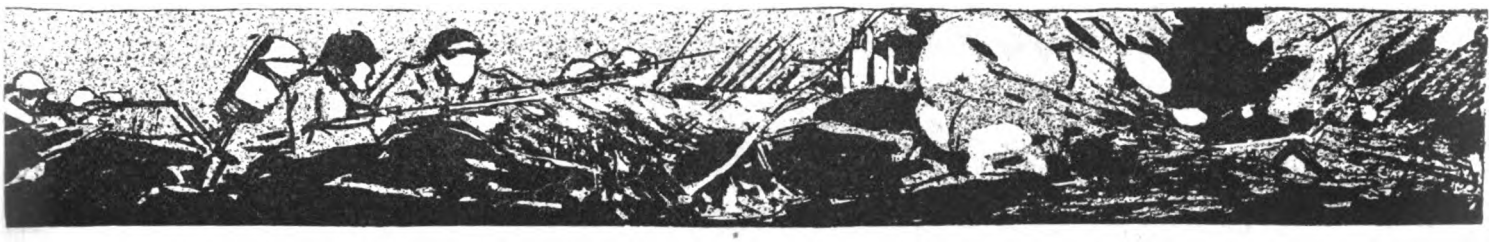
DEALERS in all parts of the country are getting ready to consider "lines of attack" in the forthcoming summer campaign for bigger business. It is going to be a successful drive. Vast stores of ammunition will be required.

This "ammunition" will consist of cars, trucks, accessories, garage supplies, shop equipment, etc.

These merchandisers of the automobile industry are in much better condition for successful operations this season than ever before. And they are willing and anxious to learn of the very best methods by which their business may be strengthened and their profits increased.



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On April 25th Motor World will Publish its First Annual

Summer Merchandising Number

It will be a master stroke in business paper publishing enterprise, and will enable the advertisers within our industry to fire their heavy shells into the minds of this big army of successful merchandisers at a time when those minds are receptive —when the whole attitude of Motor World's big subscriber clientele inclines toward the message (your message, Mr. Manufacturer) that points the way to bigger business and greater profits—for him, and for you.

As publishers of the leading merchandising paper of the car and accessory industry we are vitally interested in helping every dealer in making a good summer-season start—and keeping him going on the right track after the successful start has been made.

The forthcoming Summer Merchandising Number will insure the right start to the thousands of good Dealers, Jobbers and Garage Owners who are coming more and more to rely upon Motor World as their dependable business ally.

Circulation will be in excess of 22,000 copies, of which more than 90 per cent will go into the hands of trade leaders—the men who buy at wholesale and sell at retail nearly all products of the industry.

We invite advertisers to make space reservations early, and suggest the use of representative copy — *dominant* copy that will carry the merchandise message with force and directness.

That this big Summer Merchandising Number may bespeak the strength and dignity of the industry, we solicit the early co-operation of all advertisers. In return we propose to deliver the best vehicle for successful advertising, per dollar invested, that has ever been offered.

MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

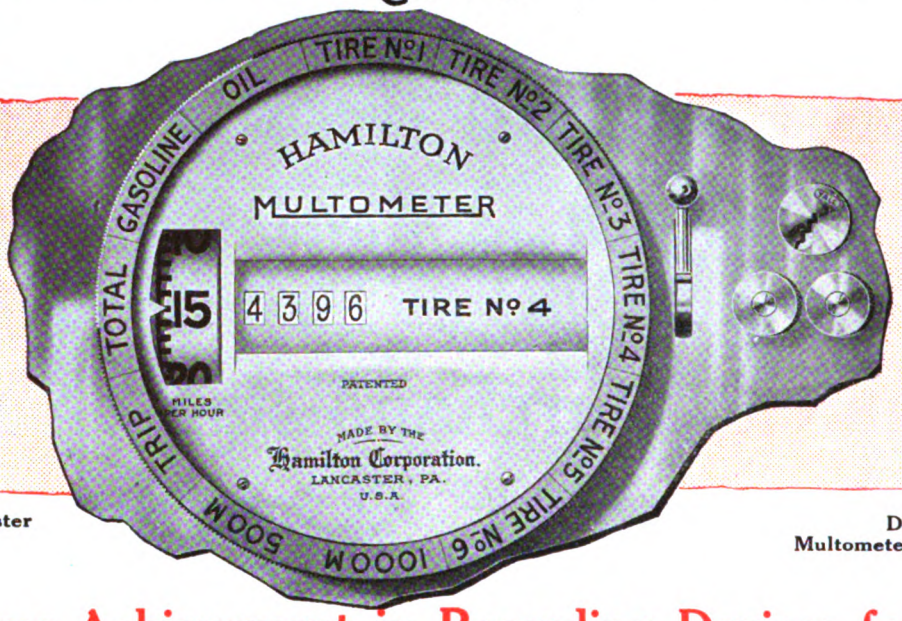
239 West 39th Street
New York City

Mallers Building
Chicago



Digitized by Google

Hamilton Multometer



Price $60 f.o.b. Lancaster
Easily Saved in Tire
Adjustments Alone

Diameter Hamilton
Multometer is 4 3/8 Inches

The Supreme Achievement in Recording Devices for Motor Cars Endorsed by Engineers, Dealers and Users

—*Every Service Record of Real Value Accurately Kept*

Hamilton Multometer is the supreme achievement of motor car recording devices. Endorsed by engineers in practically every automobile factory in the country. Accorded the unqualified praise of the biggest automobile dealers who are urging us in every mail for big contracts. Demanded by motor car owners who find in this wonderful device their first real opportunity to accurately check tire service, gasoline mileage, oil mileage, necessary adjustments, and in addition, get an accurate mileage reading and speed indication.

Thirteen distinct readings on one instrument: eleven mechanically operated. The gasoline and oil records made by hand, as the gasoline tank is filled or the oil replenished.

Tire readings check each tire in service and two spare tires. Any individual tire record can be disengaged when the tire is removed. When the tire is replaced on car, the odometer is engaged and the record started from the point checked when the tire was removed.

The guarantees of the tire companies are now made a matter of mathematical record. In tire adjustments alone, based on the accuracy of the Hamilton Multometer, the initial price of $60 can be easily saved the first year.

We are flooded with dealer orders, requests from manufacturers and orders from motor car users. We are not promising deliveries for the next thirty days, but all orders placed with us will be delivered in sequence.

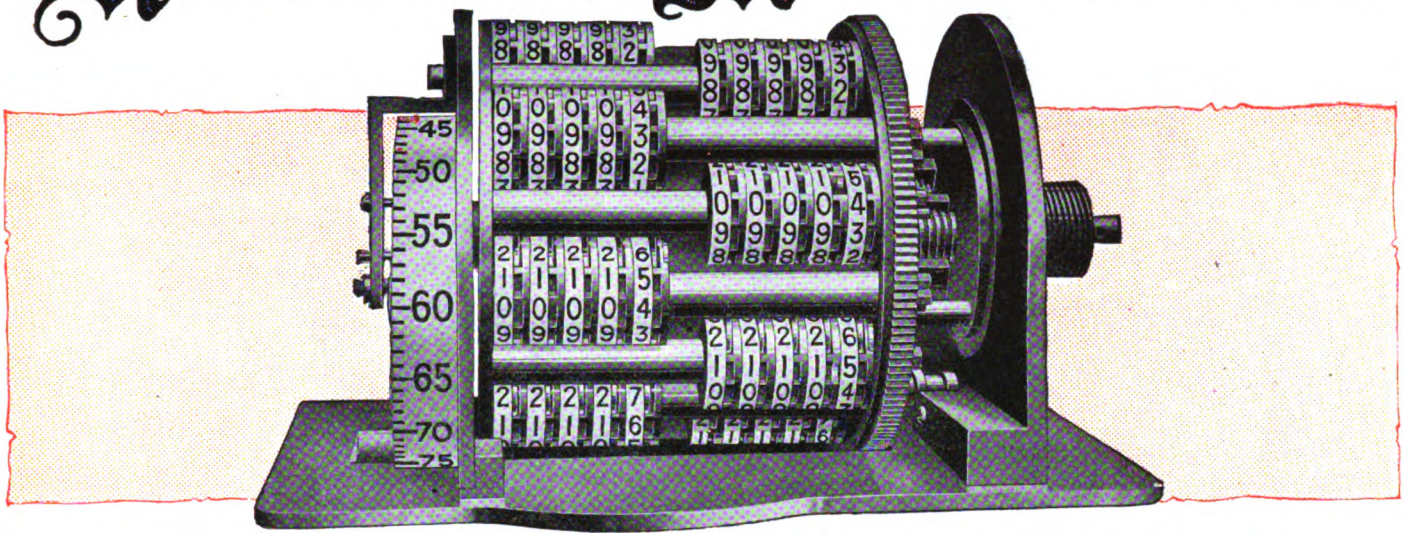
Automobile Owners—Send Your Order In Today

Automobile Owners—make certain that you will have your Hamilton Multometer for your Spring and Summer touring. Start this year to keep a positive, accurate record on every service feature of your car. Install Hamilton Multometer. Make certain that you can get one for installation by sending us your order at once.

Hamilton Multometer is easy to put in your car. It can be driven from the drive system or from a single cable to the front wheel, the same as your present speed recording device. It will give you ten readings that you can get with no other recording device. It will remove uncertainty and doubt from your records of operation. It will place your motor car on an efficiency basis, with every cost accurately recorded.

Digitized by Google

Hamilton Multometer



Amazingly Simple in Construction—Less Strain on the Driving Mechanism than the Ordinary Speed Recording Device

Built with Watch-Like Accuracy by the Makers of the Famous Hamilton Watch, "The Railroad Time Keeper of America"

Hamilton Multometer is amazingly simple in construction—a series of 12 odometers; 10 mechanically operated; 2 operated by hand setting devices; and a speed recording disc.

The driving cable operates but one odometer and a speed recording disc at a time. Other speed recording devices turn trip and season mileage and speed indicating disc together.

The drive system with the Hamilton Multometer is doing only two-thirds the work done by the drive system with other speed recording devices.

The odometers are operated in sequence, one rapidly following the other, reducing the strain on the driving cable, guaranteeing perfect operation.

To secure any reading, turn the dial ring until the reading desired and indicated on the ring is opposite lever. You will get the reading you want instantly.

Season mileage recorded to 100,000 miles: trip mileage to 1,000 miles: speed from 1 to 75 miles an hour, with absolute accuracy.

Tire mileage for each individual tire up to 10,000 miles given in large, distinct, figures on the face of the dial.

Gasoline up to 1,000 gallons: oil up to 1,000 quarts or pints.

Indications of necessary attention at the end of the first 500 miles and each 500 miles thereafter.

Hamilton Multometer occupies practically the same amount of room as your present speed indicating device.

It carries our perpetual guarantee, good as long as the seal on the dust proof Multometer housing is unbroken. This guarantee covers reliability and wear, workmanship and materials, the broadest guarantee ever offered for any motor car recording device.

And yet the price of the wonderful Hamilton Multometer, with its ten readings that cannot be obtained with any other recording device—with its perpetual guarantee—is only $60.

Are You the Dealer We Want?

We are raking the country with a fine tooth comb for dealers qualified to handle Hamilton Multometer. Our dealer organization—our service organization—must be Hamilton standard. If you have not already applied for territory, apply now, if you are fully equipped to handle Hamilton Multometer.

Applications will receive preference in the order received, subject to our examination of dealer facilities.

Write or wire today

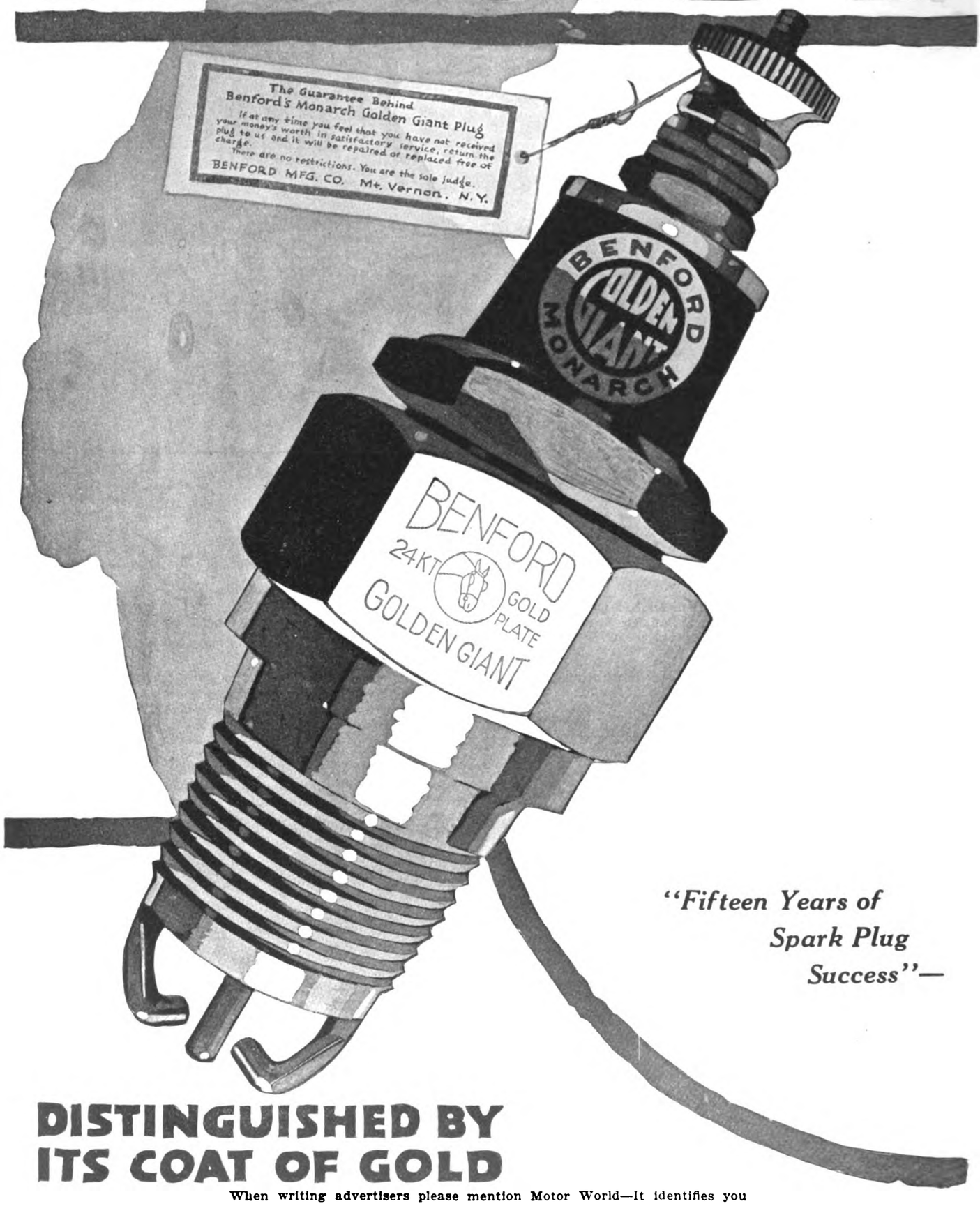
Hamilton Multometer a Recording Instrument of Scientific Accuracy

The Hamilton Corporation
Lancaster, Pa., U. S. A.

Hamilton Watch Company Makers of "The Railroad Time Keeper of America"

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BENFORD'S



"Fifteen Years of Spark Plug Success"—

DISTINGUISHED BY ITS COAT OF GOLD

When writing advertisers please mention Motor World—It identifies you

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GOLDEN GIANT

$150,000

will be invested in the Golden Giant Advertising and Selling Campaign this year

BEGINNING with April, THE SATURDAY EVENING POST and other big national magazines and trade journals—leaders in their field—will carry the Golden Giant story to every motorist in the United States.

The tremendous success of last year's advertising and selling campaign—the rush of business it brought to Golden Giant dealers everywhere—justifies this greater advertising and sales effort.

For fifteen years the demand for our product has steadily grown bigger and bigger—and it all comes back to the supreme quality of the Golden Giant Spark Plug itself.

With a product based on the solid rock of quality, with our dealers safeguarded by the most liberal guarantee ever written, we have become one of the largest spark plug manufacturers in the country.

The Golden Giant Spark Plugs have earned their distinguishing coat of 24-karat gold.

This big smashing campaign will make millions of motor car owners buy Golden Giants from you dealers.

Get Your GOLDEN GIANT Stock Ready!
Watch your profits pyramid!

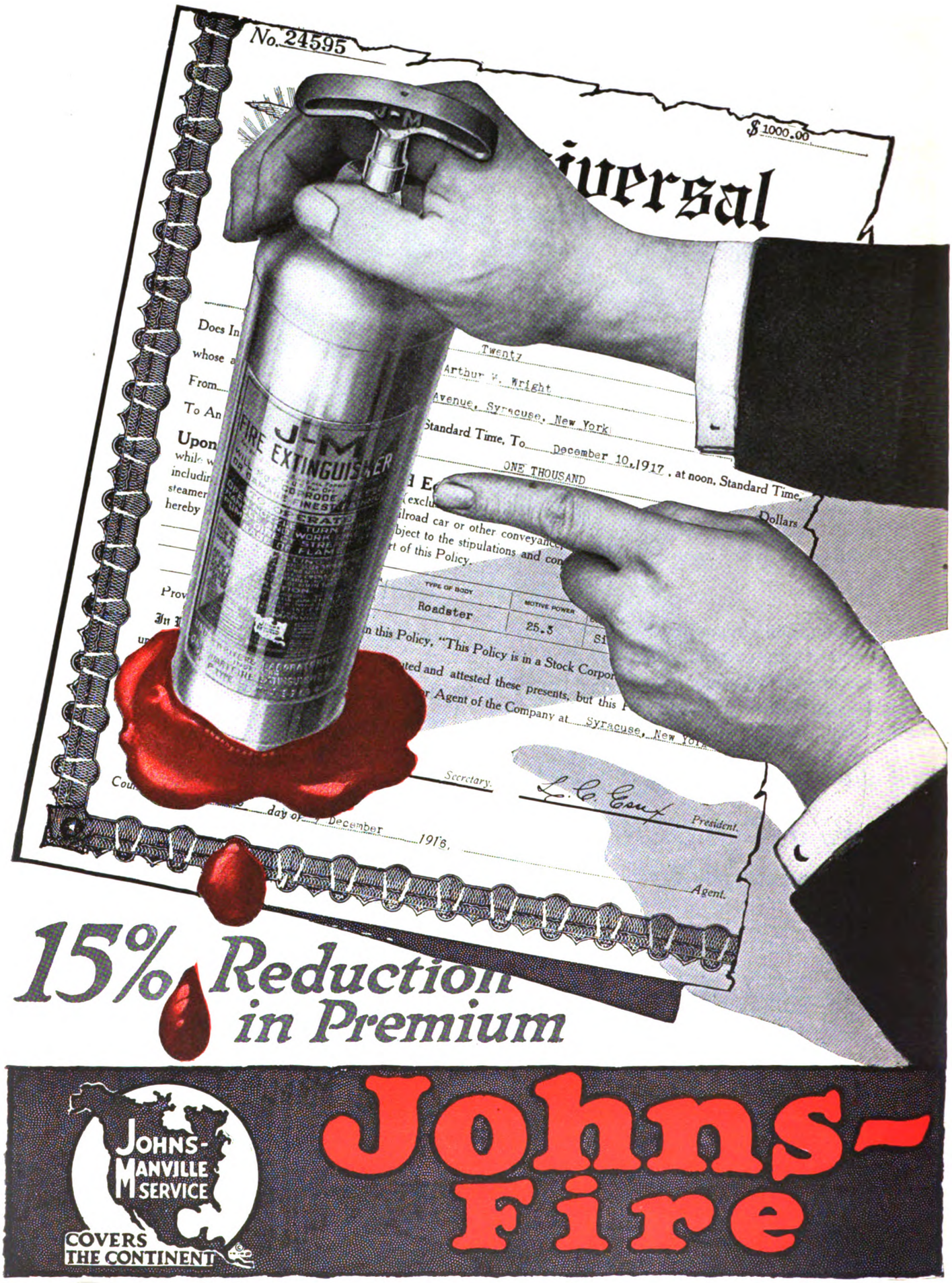
THE ARISTOCRAT OF SPARK PLUGS

$1.00 Each

BENFORD MFG. CO.
MT. VERNON NEW YORK

Printing error was made in last week's issue. Advertisement should have read $1.00 each instead of $1.00 per set.

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The Final Seal of Protection

Many motorists buy the J-M Fire Extinguisher because it entitles them to fifteen per cent reduction in auto fire insurance premiums. In other words, the saving in premium practically pays for the extinguisher—the additional protection costs nothing.

This is a big selling point—and you can add others, and double your sales of this modern, most efficient fire-fighter, by demonstrating its real value in fire prevention.

Whether your customer carries insurance or not, he needs the J-M Fire Extinguisher—a certain protection against all incipient fires. It's the only one-quart extinguisher with a two-way method of operation; it can be discharged either by pumping, *or,* in tight corners, by the air pressure previously pumped up. Always ready for the emergency whether on pleasure car or truck.

Sold only through jobber-dealer channels, on generous margins, strictly maintained and uniform regardless of quantity purchased. This is a sales policy that spells quick turn-overs and protected profits for dealers.

The J-M Fire Extinguisher is tested, approved, and labelled by the Underwriters' Laboratories, Inc., under the direction of the National Board of Fire Underwriters.

For re-charging, stock J-M Extinguisher Liquid in sealed cans—the only liquid recommended and guaranteed for the J-M Fire Extinguisher. Deadly to fire, but harmless to skin, fabric, or machinery.

H. W. JOHNS-MANVILLE COMPANY
NEW YORK CITY
Branches in 55 Large Cities

The J-M Fire Extinguisher sells for $8.00
Brass or nickel finish, bracket included



Digitized by Google

WHAT IS GOODYEAR SERVICE?



It is based on a *disposition to help*—not on any extra service equipment.

The Goodyear Service Station Dealer knows that it is to his advantage to show his customers how to get the greatest possible mileage out of their tires.

He knows that his tire experience is much broader than the experience of any who buy from him.

He knows that he has a lot of information that will save his customers money—and he gives it to them.

He knows that no tire, however good, will give good satisfaction unless it is used properly.

He takes care that every man who buys Goodyear Tires from him at least *knows how* to treat them.

He finds that the average customer is grateful for every bit of money-saving information received.

He finds that this policy of painstaking advice and willing helpfulness brings him more and more trade and cuts down adjustments to the vanishing minimum.

So Goodyear Service is not necessarily a matter of having a lot of men around and a lot of trouble cars to go out on calls.

It is very largely a matter of carefully selected advice, given to the right party at the right time.

And Goodyear Service Station Dealers find it more important to *keep* their customers out of trouble than to help them out.

The Goodyear Tire & Rubber Co.
Akron, Ohio

GOODYEAR
AKRON

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Oakland Sensible Six

"Sturdy as the Oak"

Get the *real* thrill of the open road in an *Oakland Sensible Six*. The valve-in-head motor develops full 41 h. p. at 2500 r.p.m.—one h. p. to every 53 pounds of car weight.

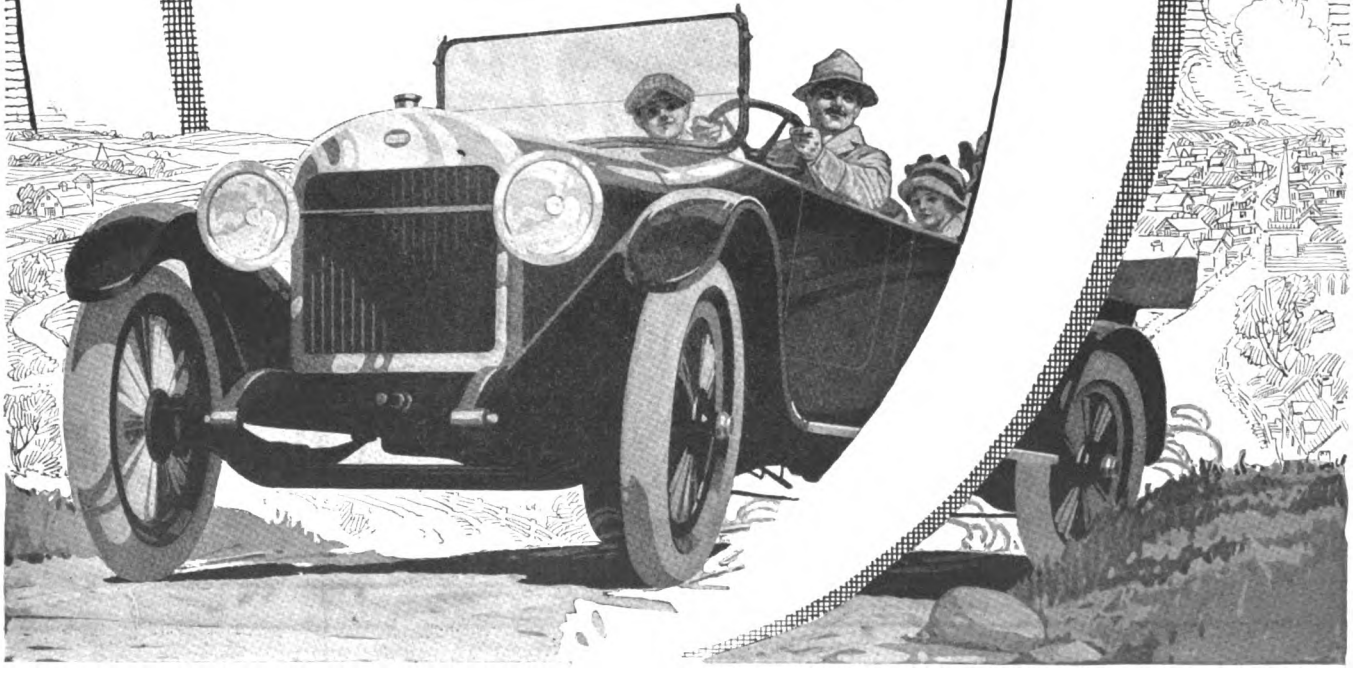
And every mile is an easy mile. The big, oversize tires, 32 x 4, the long, semi-elliptic springs, 51″ in rear, 112″ wheelbase, all make the *Sensible Six* one of the most comfortable and easy riding cars of its size ever built.

It has the power, comfort, good looks, reliability you want in an automobile—yet it is sensibly priced—$875, and built to operate at moderate cost.

Oakland Eight—$1585—is a big luxurious 73 h. p., 7-passenger touring car for those who demand the utmost in power, speed and luxury.

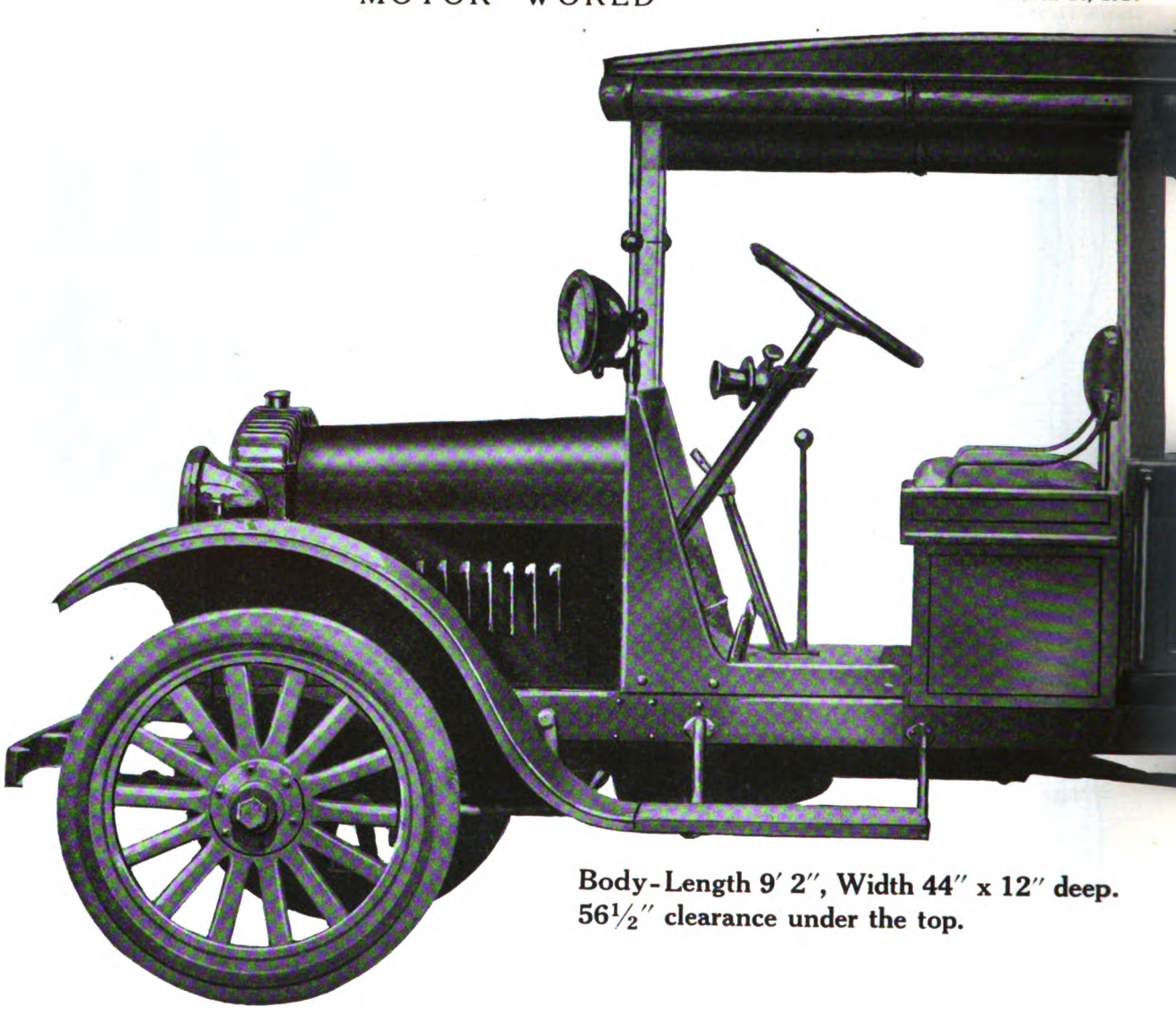
OAKLAND MOTOR COMPANY, Pontiac, Mich.

(46)



When writing advertisers please mention Motor World—It identifies you

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Body-Length 9′ 2″, Width 44″ x 12″ deep.
56½″ clearance under the top.

A YEAR AHEAD OF OTHER TRUCKS

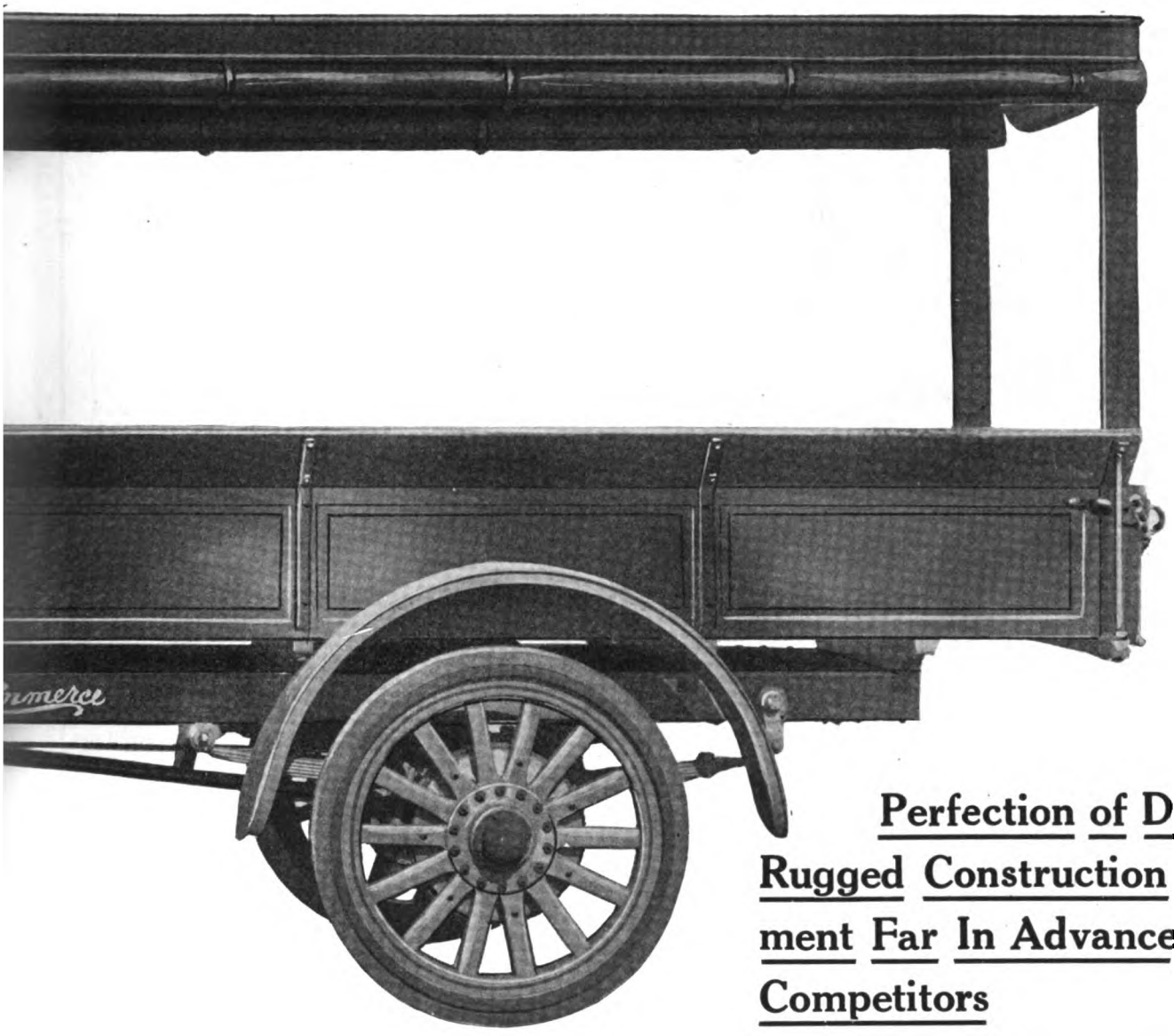
Commerce

ONE TON

MODEL EH
with complete equipment (see opp. page).
Post Top & Storm Curtain.

$1250

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Perfection of Design—Rugged Construction Equipment Far In Advance Of All Competitors

A Year ahead of other trucks does not exaggerate the advanced position of Commerce Trucks.

Of the highest possible quality in design and construction, they are thoroughly equipped with the latest aids to efficiency.

Other trucks have some of these things, but the Commerce is the only one having ALL of them NOW.

That these aids are needed in order to obtain the very most out of a truck is clearly indicated by the promptness with which other trucks are preparing to follow our example.

Next year doubtless all trucks will be so equipped—or as near it as they can get—

But right now the Commerce is the only one with absolutely complete equipment already on the truck when bought, and included in the purchase price.

COMPLETE EQUIPMENT

Three Types of Bodies—Windshield—Remy Starting and Lighting—Spotlight—Bumper (integral with frame)—Large Searchlights (with dimmers)—Stewart Vacuum System—Pierce Automatic Governor.

QUALITY UNITS

Continental Motor—Torbensen Internal Gear Rear Axle—Cast Tank Radiator with Removable Core—Truck Type Roller Bearing Front Axle—Unit Transmission, special truck type—Detroit Steel Products Company Springs.

These, together with special truck frame and fittings such as are usually found in a truck of 2 tons capacity, are the principal units that enter into the construction of the "Model ES" Commerce 1-ton Truck.

¾-Ton Model, $975. Supplied with 3 types of bodies

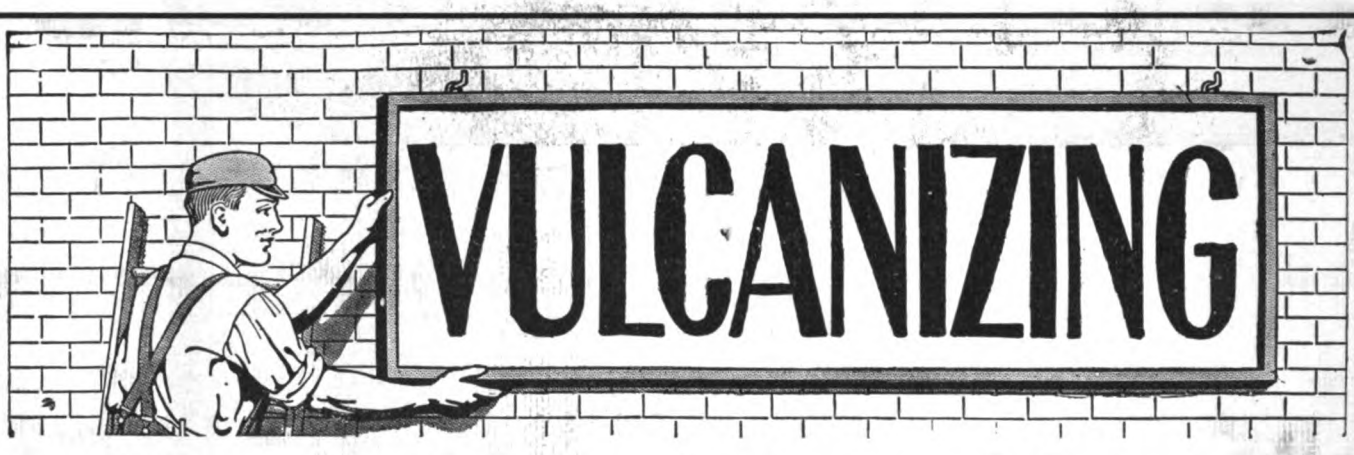
DEALERS: Have you seen the Commerce Method of advertising you in your home town? Have you seen the SHORT Commerce Contract? Are you in on our "Big Business" campaign for 1917-18? If not, write us TO-DAY for details.

Commerce Motor Car Company

DETROIT MICHIGAN

W. H. Brinkerhoff, Eastern District Manager, Belmont Avenue, Elmhurst, Long Island, N. Y.

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How to Make Bigger Money

Every one of your customers has tire repairing to be done right along. It is a simple matter for you to get this business. Half your problem is already solved. You have the customers and a place of business. Your overhead is fixed. You have workmen that can repair tires as well as they can do any other kind of repairing.

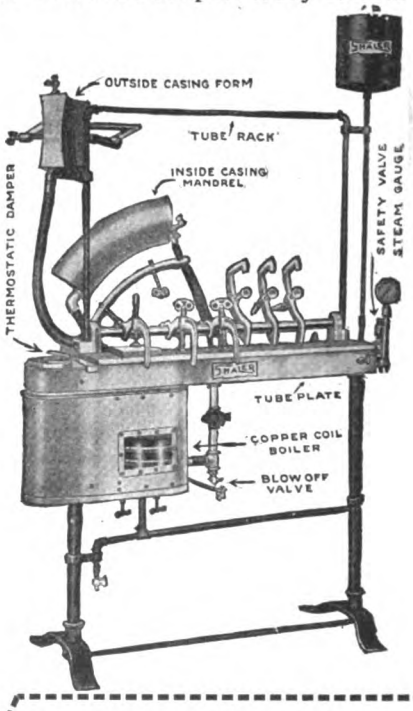
All you need now to get the tire repair profits is a vulcanizer, an economical, simple, inexpensive outfit that will enable your workmen to do every practicable kind of tire work perfectly and at a profit to you. Shaler Vulcanizers fill these requirements perfectly. Casing repairs are made with half the cost of time and material required by old methods. The Wrapped Tread Method is so simple that anyone can understand it. The initial cost of the vulcanizer and its cost of operation are only a fraction of the cost of other equipment that can neither do more work nor make as good repairs.

Resolve now to get the profits on your customers' tire repairs. Send the coupon today for our new 1917 catalog, the most complete vulcanizer catalog ever issued.

SHALER

Vulcanizing Plant $65

Steam heated. Price subject to trade discount



Repairs 200 tubes and a dozen casings daily. Temperature controlled automatically. Heats in 25 minutes—needs no regulating. Casings repaired by approved Wrapped Tread Method—no airbags.

No other guaranteed steam vulcanizer at near the same price has so great a capacity, heats so quickly, or operates so simply.

Widely used by the United States and foreign governments. Standard equipment in the majority of good repair shops. The only shop vulcanizer sold by 97% of the leading jobbers—year after year.

Ask Your Jobber's Salesman

The Shaler Line of Vulcanizers
(or "Profits for Accessory Dealers")

The Shaler Line includes the most popular motorist's vulcanizers on the market—models selling from $1.50 to $12.50—every one in demand and every one bearing a generous margin of profit.

Our 1917 advertising campaign is going to bring them more forcibly than ever to your customers' attention.

Ask your jobber's salesman about the famous "Vul-Kit" and the new "5-Minute." He will tell you what other dealers are doing with them.

Catalog Free Mail Coupon!

Every day you delay is a day of vulcanizing business lost. Get our new 1917 catalog. Mail the coupon at once—NOW!

C. A. Shaler Co.
409 Fourth St., Waupun, Wis.

Opportunity Coupon

C. A. SHALER CO.,
409 Fourth St., Waupun, Wis.

Send new catalog of Vulcanizers for Motorists and Repair Shops.

Name .....

Address .....

Do you sell accessories? .....

Jobber's Name .....

Digitized by Google

HIGHLAND

UTILITY BODIES

The Right Delivery Body for the Ford



Model O U C
Canopy-top Body with Side Curtains

DEALERS find Highland Utility bodies easy to sell because they have a country-wide reputation as good in its way as that of the Ford itself.

Any Ford dealer is glad to sell a Highland commercial body. He knows that in style and sturdiness it has no equal; it will give to the buyer the same grade of service that he expects of the car itself.

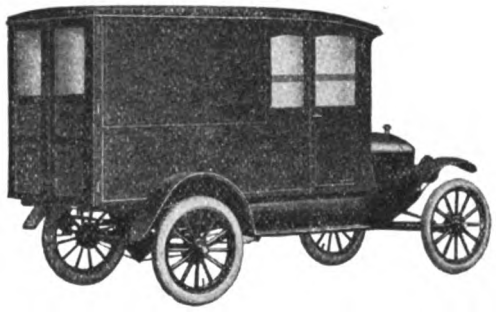


Model O U
Open Body with Covered Cab

Ford Dealers:

Why not get Our Proposition?

We have, we believe, the best commercial body proposition available today. The body is right; the price to the consumer is right; and our tremendous output enables us to provide the right profit for you.



Model F U V
Panel Body with Complete Enclosed Cab

Besides, we co-operate with you in lining up prospects, and our national and local advertising helps your sales.

The body proposition is either a nuisance or a profit-maker to you. Why not make it the latter?

HIGHLAND BODY MFG. CO.
321 Elmwood Place **Cincinnati, Ohio**

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"What am I Feeding my Engine?"

Carbon, the greatest detriment to engine efficiency, may be minimized by the proper choice of lubricants. For instance

SUPREME AUTO OIL

being manufactured from Asphalt Base Crude, *leaves less carbon*, as it contains no paraffine to gum and stick. At the same time it affords perfect lubrication.

GULF REFINING COMPANY

The Largest Independent Refining Company in the World

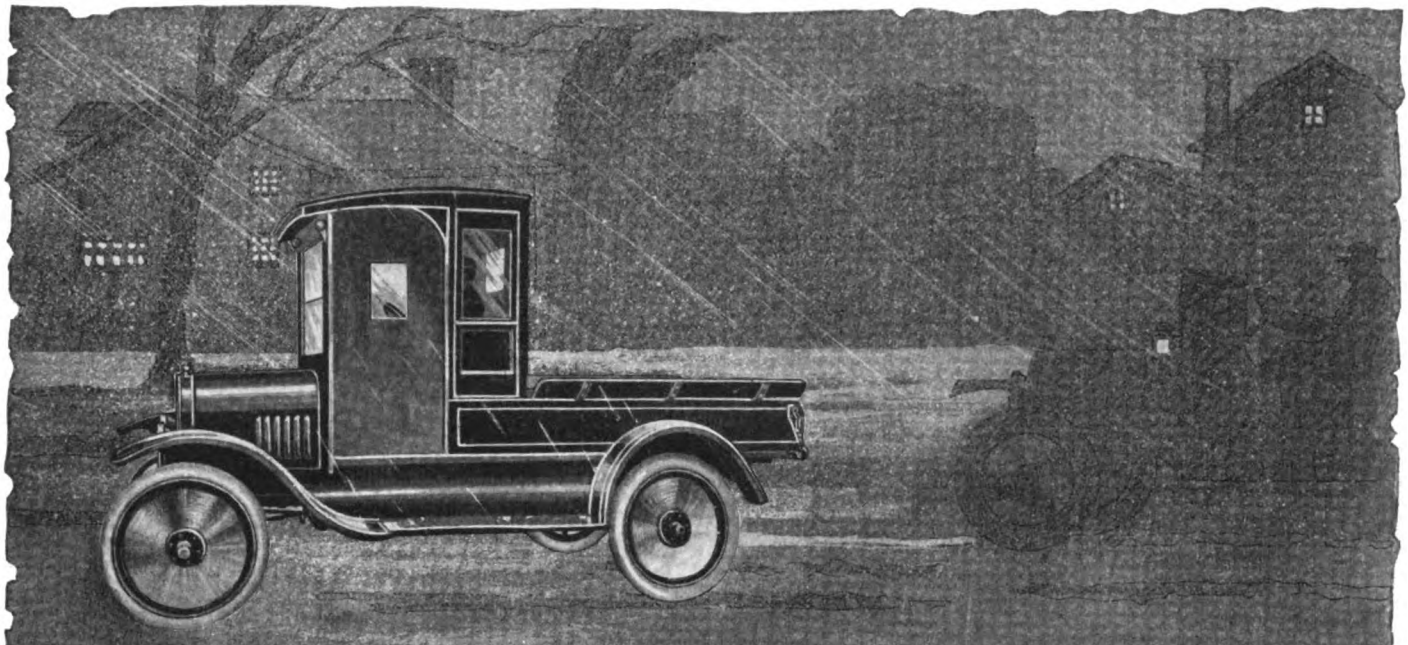
General Sales Offices: Pittsburgh, Pa.

District Sales Offices:

Boston New York Philadelphia Atlanta New Orleans Houston



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IN ALL KINDS OF WEATHER

THE winter season, when retail store deliveries are slow and difficult, affords dealers handling Henney Bodies for Ford Cars the greatest opportunity to increase their trade.

Henney Commercial Bodies for Ford Cars

are light weight, of great strength, built of selected, seasoned hardwood, braced and bolted to give maximum service. They solve the quick and economical delivery service problem for your local dealers.

Can be attached to any Ford chassis in a few minutes.

We make a Henney Body for any line of business.

QUICK DELIVERY — HELPFUL CO-OPERATION

Our organization and system of distribution through many branches enables us to fill orders promptly at low freight rates and render valuable selling help. Stocks of Henney Bodies carried at the following points:

Kansas City, Mo.	Stockton, Cal.	Denver, Colo.	Bloomington, Ill.
Omaha, Neb.	Los Angeles, Cal.	Atlanta, Ga.	Moline, Ill.
Minneapolis, Minn.	Salt Lake City, Utah	Des Moines, Iowa	Columbus, Ohio
Dallas, Texas	Poughkeepsie, N. Y.	Sioux Falls, S. D.	Minot, N. D.
St. Louis, Mo.		Portland, Ore.	Oklahoma City, Okla.

We would like to mail you our catalog and give you full particulars of our money making proposition. Write for it today.

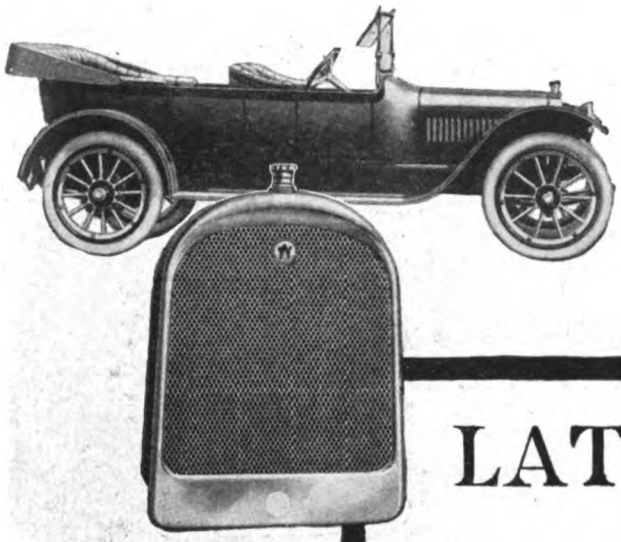
HENNEY BUGGY

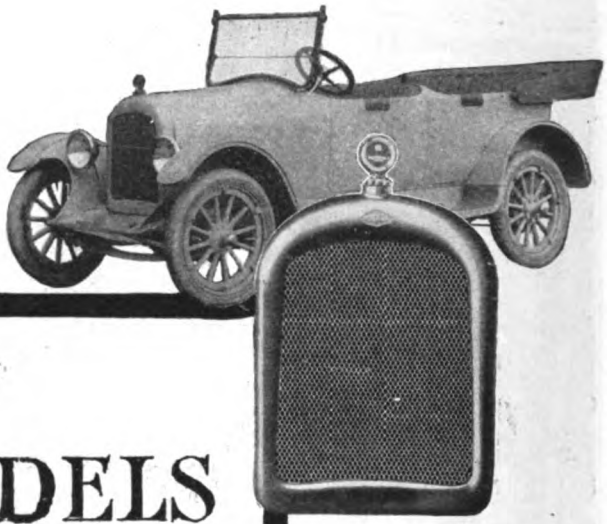
Branch of MOLINE PLOW COMPANY

Factory: Freeport, Ill. Sales Office: Moline, Ill.

Henney Buggy, Branch of Moline Plow Co.
Moline, Ill.—Dept. K.
I am interested in receiving full information regarding Henney Commercial Bodies.
Name .....
Town ..... State .....
Business Engaged in .....

Digitized by Google





LATEST MODELS

Like the face of an old friend you glimpse the *radiator* on a Fedders Equipped car as it winds through the traffic. It is an identification mark that you *see first,* and, perhaps, *remember longest.*

Nothing changes the general appearance of any car more than a change in the design of the radiator. And if it is your problem to change the design of your car, yet retain the assurance of perfect radiation, put it up to the FEDDERS' Engineers.

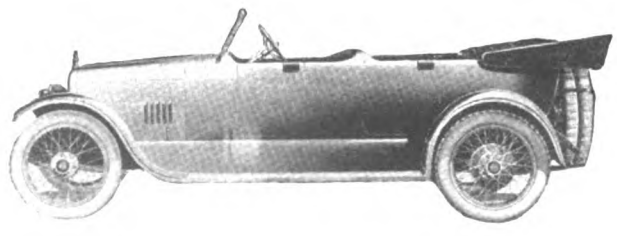
Thirteen years of specialized effort have taught us the materials that are best—the construction that is most practical—and the designs that will best embody all desired points and still contribute most to the effect you wish to create.

FEDDERS RADIATORS

Fedders Manufacturing Co.

BUFFALO, N. Y.







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A Page Ad for YOU on these sales building Firestone FOLDERS

YOUR name big. Your address and telephone number. Some real advertising for your store. No wonder dealers everywhere are calling for these attractive color folders in large quantities. They're getting the other items, too. The

New Firestone Advertising Plan

covers everything you need for advertising and building the sales of your store. A simple, concentrated method that allows you to arrange your advertising for months ahead. Advertising moves automatically during the summer months when it can do the most good. You can forget it and take care of the sales it brings in. Everything the best: fine color printing, strong sales-compelling arguments.

Write for Plan

Get this Firestone method of co-operating with you in your advertising and sales building. Mail coupon, no obligations. Get the facts, then decide.

FIRESTONE TIRE & RUBBER COMPANY

Akron, Ohio—Branches and Dealers Everywhere

Firestone Tire and Rubber Co.
Akron, Ohio

Please send me complete details of your new advertising plan for increasing the tire and accessory sales of my store. It is understood that this places me under no obligations whatever.

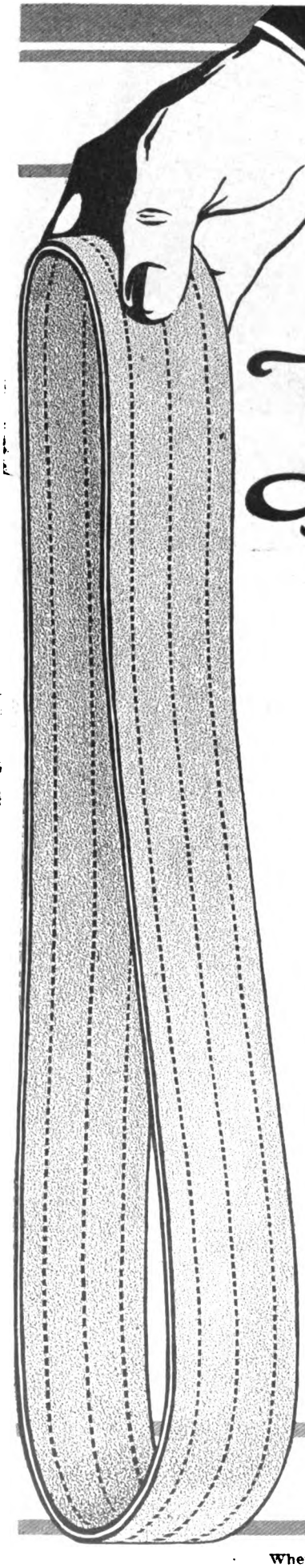
Name _____

_____

St. and No. _____

Town _____ State _____

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A Corking Good Fan Belt At A Corking Good Price

Triple Stitch

Here's the kind of a fan belt every dealer wants. Made of two plies of high grade oak-tanned leather, stitched with three rows of waxed linen thread. Laps and plies thoroughly cemented together. Practically stretchless and very pliable. Triple Stitch is a fan belt of remarkably high quality. Yet it can be sold at a surprisingly low price---and a price that will yield you a good profit.

More than 75% of all the leather transmission parts used in automobiles today are of our manufacture. Here's proof of the high quality of our products. They will satisfy both you and your customers.

A Complete Line of Profit-Making Fan Belts

Wetprufe Guaranteed to withstand water, heat and oil. The leading car builders of the United States use and endorse Wetprufe Fan Belts, which is full assurance that they will satisfy you and your customers

Vee Sol A solid "V" belt made with or without lugs. Accurately cut to angle and size. Flexible, sturdy, and practically stretchless. Holds its shape faithfully.

VEE FLEX A superior laminated belt for "V" pulleys. Each lamination overlaps the other and is securely riveted. Very pliable and practically stretchless. May be had in either oak or chrome tannage---in continuous lengths or endless.

Flat Grip Our flat fan belting resists water, heat and oil. Can be cut in any length desired, and made endless with flexible fastener, which we furnish. Laps double-stitched with linen thread.

In addition to Fan Belts, we are also manufacturers of—

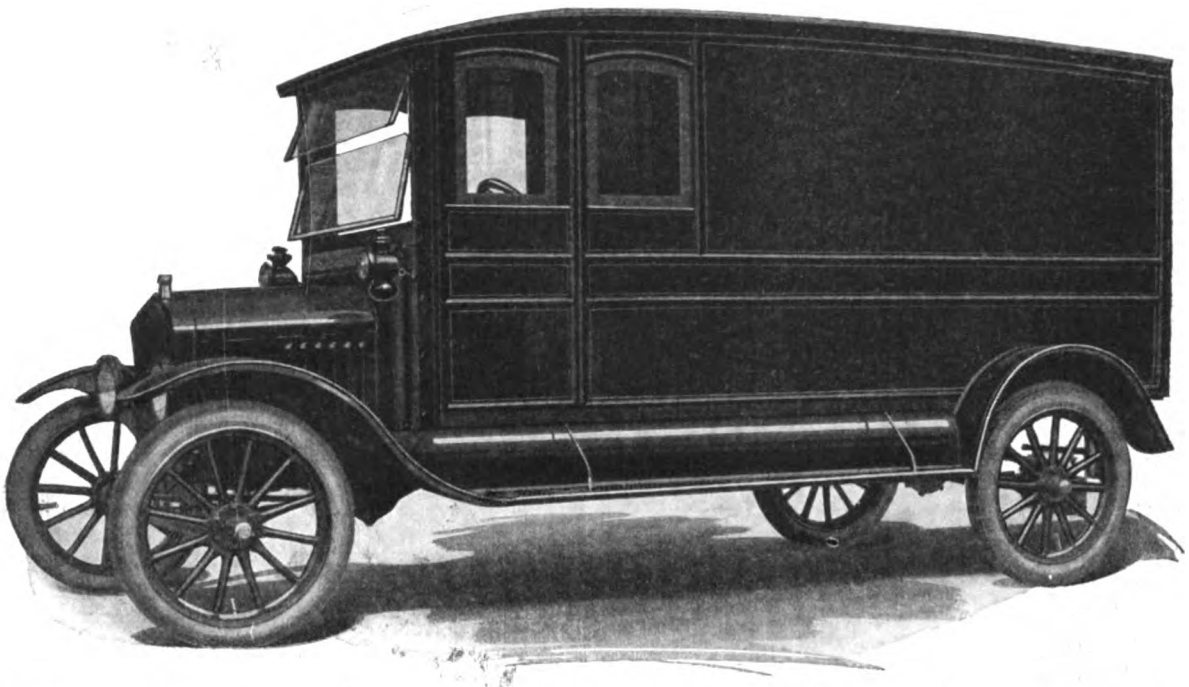
- Cone Clutch Facings
- Disc Clutch Facings
- Generator Coupling Leathers
- Universal Coupling Discs
- Universal Joint Boots
- Knuckle Boots
- Discs
- Washers
- Rebound Straps

Write today (on your business letter head) for samples and attractive prices.

Hide, Leather & Belting Company

227-D South Meridian Street Indianapolis, Indiana

Digitized by Google



The Babcock Quality Is Unmistakable

DISTINCTIVE in design, gracefully proportioned, beautifully finished, **Babcock Bodies** attract attention. Conspicuous in their refinement, they are worth their price in advertising alone, for the modern establishment reflects its tone in the character of its delivery vehicles. Constantly in the public eye, they are at once the most effective and cheapest medium in the publicity field today.

With a steel skeleton base, a structure of the finest native hardwoods, and great one-piece side panels of **Vehisote,** which affords a foundation "sheer" as polished marble for a smooth, enduring evenness of finish

BABCOCK
COMMERCIAL BODIES

are the QUALITY BODIES for commercial cars.

To generations of carriage buyers "BABCOCK" has meant "QUALITY." It has come to have the same significance to the commercial motor world.

Advancing costs of labor and material are being commonly met by a cheaper and "slicker" body at the old price. The traditions of 70 years' supremacy in the finest body building forbid this course to us. True to these traditions, we elect to maintain Babcock quality unimpaired, to continue making the best body obtainable, and to charge a fair and reasonable price for honest value.

The purchaser of a Babcock Body gets every dollar's worth he pays, and he has the satisfaction of knowing that there is nothing better made. Their patented steel construction makes them 1/3 lighter than any others of equal strength, 2/3 stronger than any others of equal weight, and they outlast the cheaper sort by years of service.

Babcock Bodies represent Lowest Final Cost.

To Buyers: There is more dollar for dollar value in a Babcock Body *from your own standpoint* than in any other commercial body that you could possibly obtain. *We make a body for every need.*

To Dealers: Babcock Bodies carry their own story. *They sell themselves and stay sold.* Don't miss the opportunity to handle *a better body.*

H. H. BABCOCK COMPANY

WATERTOWN, FOUNDED 1845 NEW YORK.

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GURNEY



Manufacturers of high quality medium priced cars use Gurney ball bearings, because they know from experience that Gurney bearings sustain heavier loads (radial and thrust) and carry them longer than any other ball bearing on the market.

How Gurney bearings are able to do this is a longer story than we can give in this small space, but we shall be glad to tell it to you on request.

GURNEY BALL BEARING CO.

Conrad Patent Licensee

JAMESTOWN, N. Y.

Chicago, Ill. New York City

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What Gibson Means By Quality

ACCESSORY dealers and garage operators know that we will not sell them any device or accessory that is untried or experimental.

Every article listed in our catalog is first subjected to searching analysis and test by our Engineering and Research Departments. These tests determine the merit and salability of each article.

Thus, we do not experiment on the dealer. We experiment on ourselves—and in our own special laboratory.

Dealers appreciate this service. It is protection for them —and protection for us.

This, then, is what we mean when we say Gibson QUALITY. It has won for us the confidence of dealers throughout the whole United States. This, with Prompt Service, Fair Treatment and Dealer protection, has made the business of The Gibson Company a BIG business.

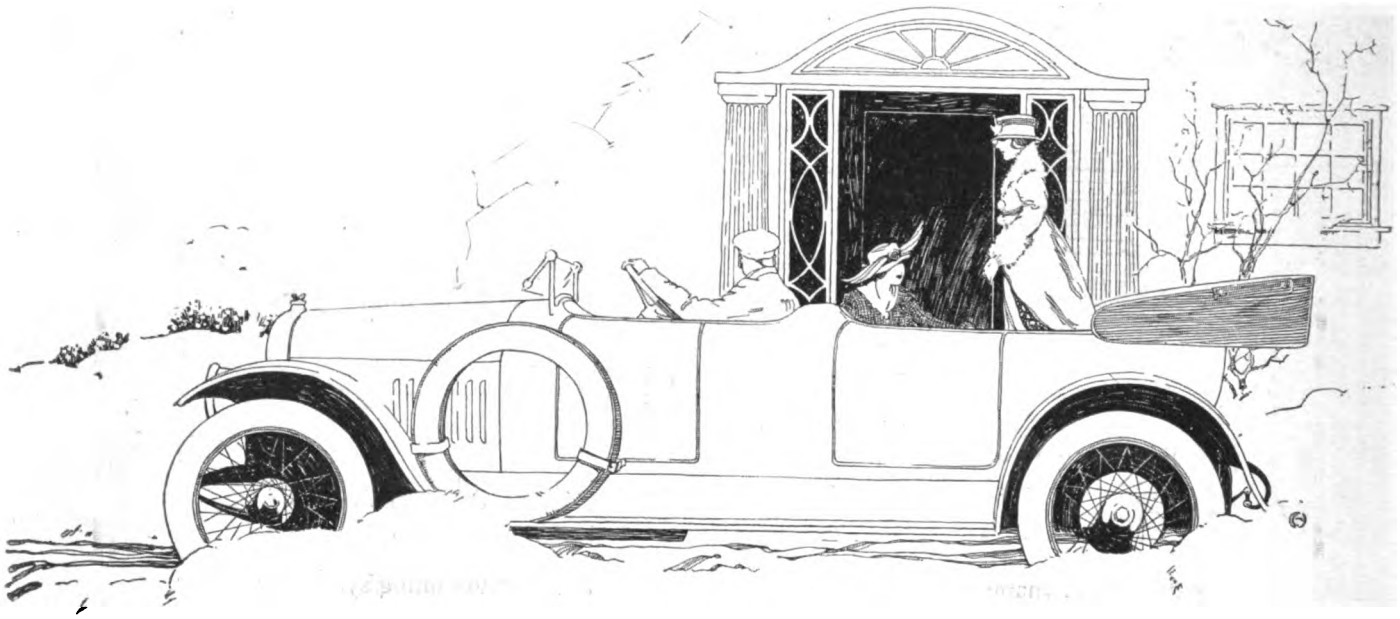
We serve only the legitimate accessory dealer and garage operator. And to them, wherever they may be, we will gladly send our new catalog—just off the press. Write to us—asking for Catalog G-2—and allow us to place your name on our permanent mailing list.

THE GIBSON COMPANY
INDIANAPOLIS

Motor Car Accessories and Tires
Shop Equipment and Electrical Supplies

"Gibson serves the World"

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JOHNSON CARBURETOR

De Luxe Equipment for Quality Cars Where Super-Service Is the Only Requisite



JOHNSON COMPANY

Makers of Superfine Instruments of Carburetion

DETROIT MICHIGAN

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40 Per Cent More Efficiency

Than Ever Before Attained in a Car of Equal Size and Piston Displacement

THE MONROE "4"

Official Tests Have Proved It

THE piston displacement of the Monroe "Four" is just under 150 cubic inches.

Its maximum power—as determined by exhaustive dynamometer tests—is just over 44, giving a horsepower per cubic inch value of 0.29.

Compared with the best four-cylinder engine of equal size and piston displacement on the market today, the Monroe "Four" offers you an increase of over 40 per cent in power output per cubic inch of piston displacement, and an increase of over 25 per cent total horsepower available.

Vibration Eliminated

By the use of a fully counterbalanced crank shaft, and a perfect system of lubrication, vibration and friction have practically been eliminated. These features and a highly improved method of carburetion have made possible this matchless efficiency.

But by these scientific advances we have done even more than increase by 40 per cent the efficiency of this car. Engine wear has almost been reduced to zero. Fuel and engine economy have been increased to an almost unbelievable degree. A riding comfort has been secured that is matchless in cars of like wheelbase.

An All-Feature Car

And this is but one of the many features of this all-feature car.

You get the ability to accelerate from 5 to 50 miles an hour with the utmost ease and speed.

You get an M. & S. locking differential restricting differential action, practically preventing slipping, skidding and sticking.

You get a pressure oiling system which supplies oil directly to the motor, which supply is increased or decreased in proportion to power production. By a continuous flow of oil, part of which is not used for lubrication, the temperature of the crank shaft bearings is kept low and the viscosity of the oil is maintained.

You get a cross compound cantilever spring construction, giving an unequaled riding ease and comfort over country roads at high speeds. Combined with this is a beauty of line and a luxury of appointment such as is rarely found in anything but the costliest cars.

Prove These Facts

We know that such features in a car of this class seem almost unbelievable.

We want you to make your own tests. Watch it do feats which no other car of like size ever did before. See how it feels to ride in a vibrationless car. Learn what it means to have 40 per cent more efficiency. Note its abundance of power. its flexibility, its quick response.

Then remember that the Monroe "Four" is the only car that offers you all of these features, and you will realize the wonderful opportunity that this car of advanced design offers you. Price $985 f.o.b. Pontiac, Mich.

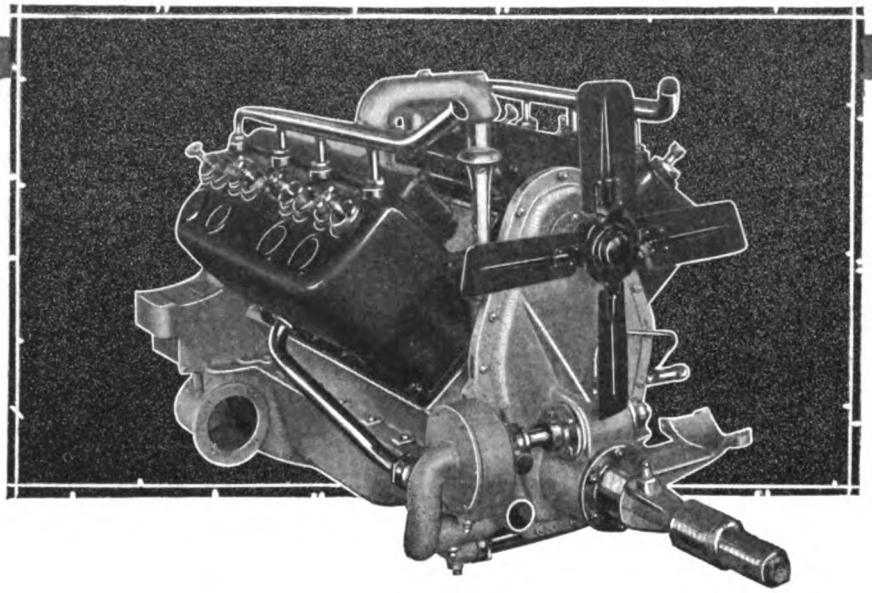
Write us for our attractive dealer's proposition.

MONROE MOTOR COMPANY, PONTIAC, MICH.

Makers Also of a Small "4" in Sedan, Roadster and Club Models (8)

Digitized by Google

SPILLMAN "8"



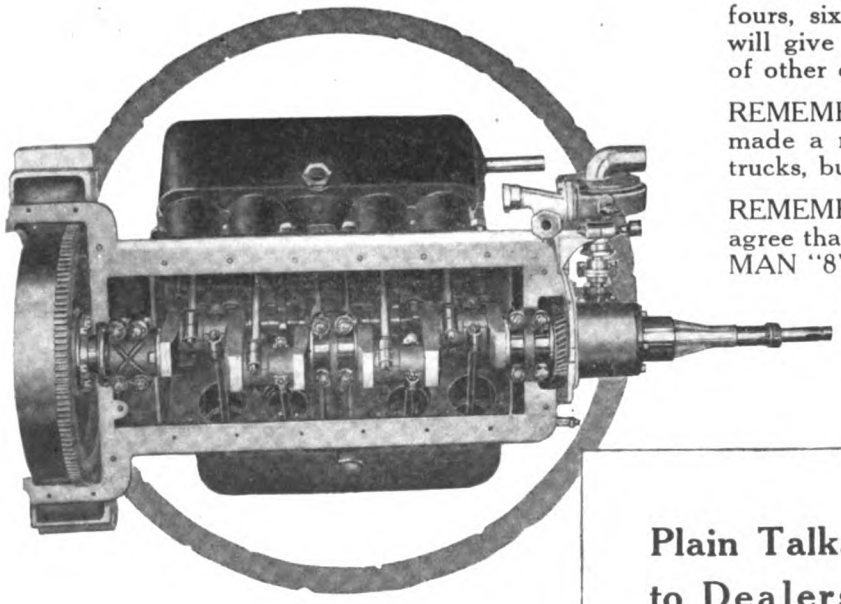
KNOW THE MOTOR YOU SELL

JUST A MOMENT! Do you know the motor you sell? Do you know it as compared to other motors? Have you convinced yourself that it is the best your customers could buy?

How does it compare with the SPILLMAN MOTORS? How about lubrication? Cooling system? Accessibility of parts?

We are asking you these questions sincerely. Of course, we want you to sell SPILLMAN MOTORS, but we want you to do so because you are actually convinced of their superiority. And we do not know any better way to bring this about than by having you compare the SPILLMAN with other motors.

If you are now contemplating taking on a new line of cars, do not fail to try out a SPILLMAN equipped car before deciding. This motor is going to be a tremendous help in selling cars this coming year. Don't labor under the handicap of bucking the SPILLMAN reputation—take on a line of SPILLMAN engined cars and swim with the current. Whether they be fours, sixes or eights, the SPILLMAN engine will give them a selling strength beyond that of other cars.



REMEMBER that the SPILLMAN has not only made a name for itself in pleasure cars and trucks, but in farm tractors as well.

REMEMBER that all experienced engineers agree that the lubrication system of the SPILLMAN "8" is the best and most efficient system in use at the present time!

Plain Talks to Dealers

No. 4

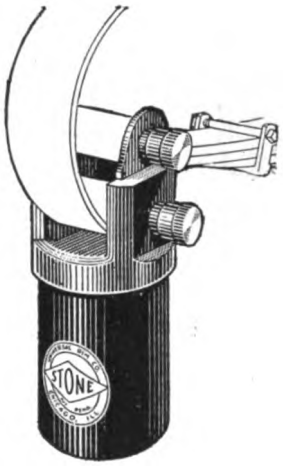
Herschell-Spillman Co.

North Tonawanda

NEW YORK

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DEALERS

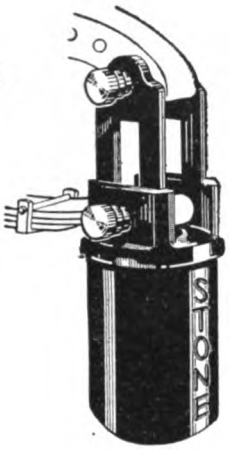


Showing Application to Ordinary Type of Spring.

Advise Your Customers to Add to the Life of Their Cars

By Equipping Them with

STONE



Showing Application to Semi-Elliptic Type of Spring

SHOCK ABSORBERS

No springs are elastic enough in themselves to entirely stop the force of heavy jolts and jars. Those that escape are what start squeaky bodies, loose bolts and rattles. That's why the body of a car is almost invariably worn out long before the engine even shows signs of wear.

Stone Shock Absorbers take all the snap out of the jolts. They eliminate all worry about bumps, for they smooth the heaviest jolts into smooth, pleasant undulations. *They take the edge off riding.*

A Sensational Seller

Dealers and jobbers everywhere are reporting an ever increasing demand for this wonderful shock absorber. Thousands have read our advertisements in the leading motor publications and have already equipped their cars with Stone's. Many more thousands will be convinced of the need for absorbers for their cars and of the superiorities of Stone Shock Absorbers. And don't forget that there is a good margin of profit for you in them.

Means New Friends

Motor car owners who have equipped their cars with these shock absorbers are enthusiastically endorsing them.

Tell your customers that you handle them. They will be so pleased with the wonderful riding improvement of their car once they get a set of Stone's that not only will they tell their friends, but they will come to you for all the other accessories they need.

They Sell For

$12

A PAIR

Increase the volume of your business all along the line by becoming a Stone dealer.

Write to your jobber today for full particulars.

Act quickly. Don't let someone else get the business that is rightfully yours.

Made and Guaranteed by **UNIVERSAL RIM COMPANY** *Makers of the Baker Rim*

Dept. 95, 1502 Michigan Avenue, Chicago, Ill.

(59)

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NASH Jeffery MOTORS

THE mere announcement that C. W. Nash had purchased the Jeffery factory brought a flood of dealer applications.

These men realized that the present Nash line, including Jeffery cars and trucks, offered opportunity for ready profits. At the same time they were confident that the future would enhance appreciably the value of a Nash contract.

Jeffery Sixes

Seven Passenger Touring Car,	$1465
Seven Passenger Sedan . .	1630
Roadster	1435

Jeffery Fours

Seven Passenger Touring Car,	$1095
Seven Passenger Sedan . .	1260

Jeffery Trucks

Rapid Service Wagon . .	$ 965
All-Purpose Truck . . .	1465
The Jeffery Quad	2850

THE NASH MOTORS COMPANY. KENOSHA. WIS.

Manufacturers of Jeffery Cars and Trucks, including the Jeffery Quad

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BETHLEHEM



Five Point SPARK PLUG

THE widespread interest and tremendous demand created by the remarkable sales and advertising campaign on Bethlehem products show that the jobber—dealer—consumer public *understand* the sincere motives and appreciate the big, broad policy behind this new line of accessories.

Write today for particulars

The Silvex Company

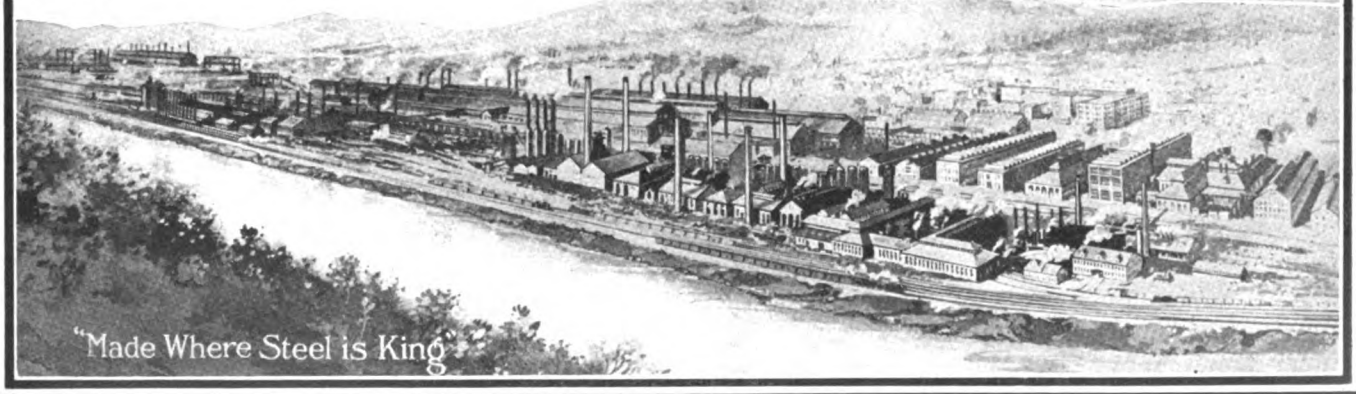
BETHLEHEM PRODUCTS

South Bethlehem, Pa.

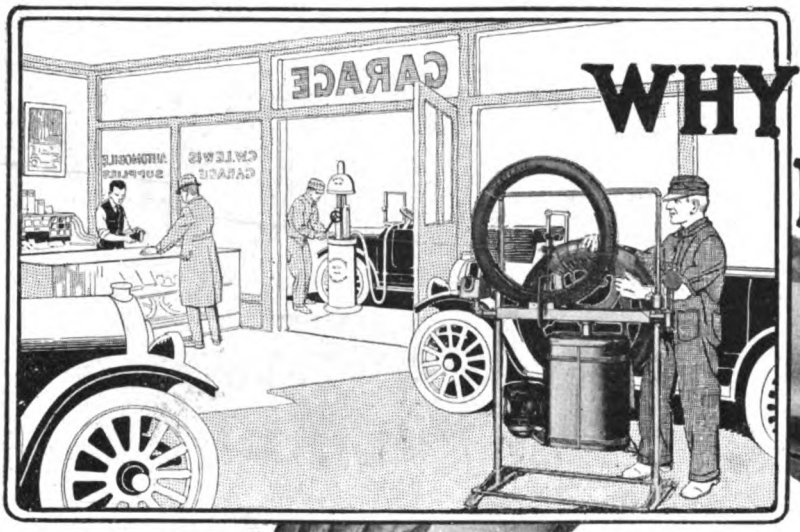
E. H. SCHWAB, President

Guaranteed for the Life of Your Car

$1
in Canada
$ 1.25



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WHY NOT TIRE-REPAIRING TOO?

Send for complete Information. Write today — it will make your business very profitable. Read our literature, whether you buy or not. It will help you. Don't delay—send this coupon today.

For busy garage men—garages crowded for space, and yet seeking additional money-making avenues, here is our message:

EVERY customer of your garage is a prospect for tire repairing, along with other service you can give. They know it is tire economy to take care of every little cut—every little bruise, at the earliest opportunity. It adds ¼ to ½ more mileage to their tires. The few cents they spend saves many dollars. Spent with you it has made friends for life—customers you can depend upon—who will stick with you—who will let you supply complete service both on their cars and tires.

We have just invented a very compact machine requiring almost no room. It will go into any corner—any little spot out of the way. You can even move it about from place to place if preferred. It will do tire repairing of almost any kind—on casings and tubes, without muss, fuss or trouble. It is fast and certain and a big money getter.

HAYWOOD'S Model D.B. VULCANIZING PLANTS

Truly Wonderful Machines

Built according to the Haywood standard—a standard set from the experience of years manufacturing tire repair equipment. It repairs tires quickly and permits of exceptional profits. It is simple to operate. No special training is necessary. You can turn a boy on the job. Complete instructions with each machine enables most anyone with a little practice to operate it.

An Unusual Price, Only $45

You can make a Haywood machine earn its cost every week of the year. Your net earnings depend solely upon the time you can give to this branch of your business. We help you in every way. We are national advertisers. Have been at it for years, advertising Haywood's Service of tire repairing. Now you can cash in on this prestige. You can get your share of the tremendous demand already created for Haywood Tire Repair Service.

Your Jobber Can Supply You

Ask him to show you the Haywood D-B. If he is not supplied ask him to send for a sample machine. Let us send you complete details anyway. Send a post card or mail the coupon today.

Haywood Tire & Equipment Co.
1147 No. Capitol Ave.
INDIANAPOLIS, IND.

Sign and Mail This Coupon Today



A BUSINESS OPPORTUNITY COUPON

Mr. M. Haywood, Personal,
1147 N. Capitol Ave., Indianapolis, Ind.

Dear Sir: Please send me full details how I may start a Haywood Sundry Supply Store and Tire Repair Shop in this locality.

Name .....

Address .....



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AUTOMATIC IGNITION CONNECTICUT



The device shown above identifies this switch and marks the cars equipped with Connecticut Automatic Ignition. This is the "Device of Efficiency."

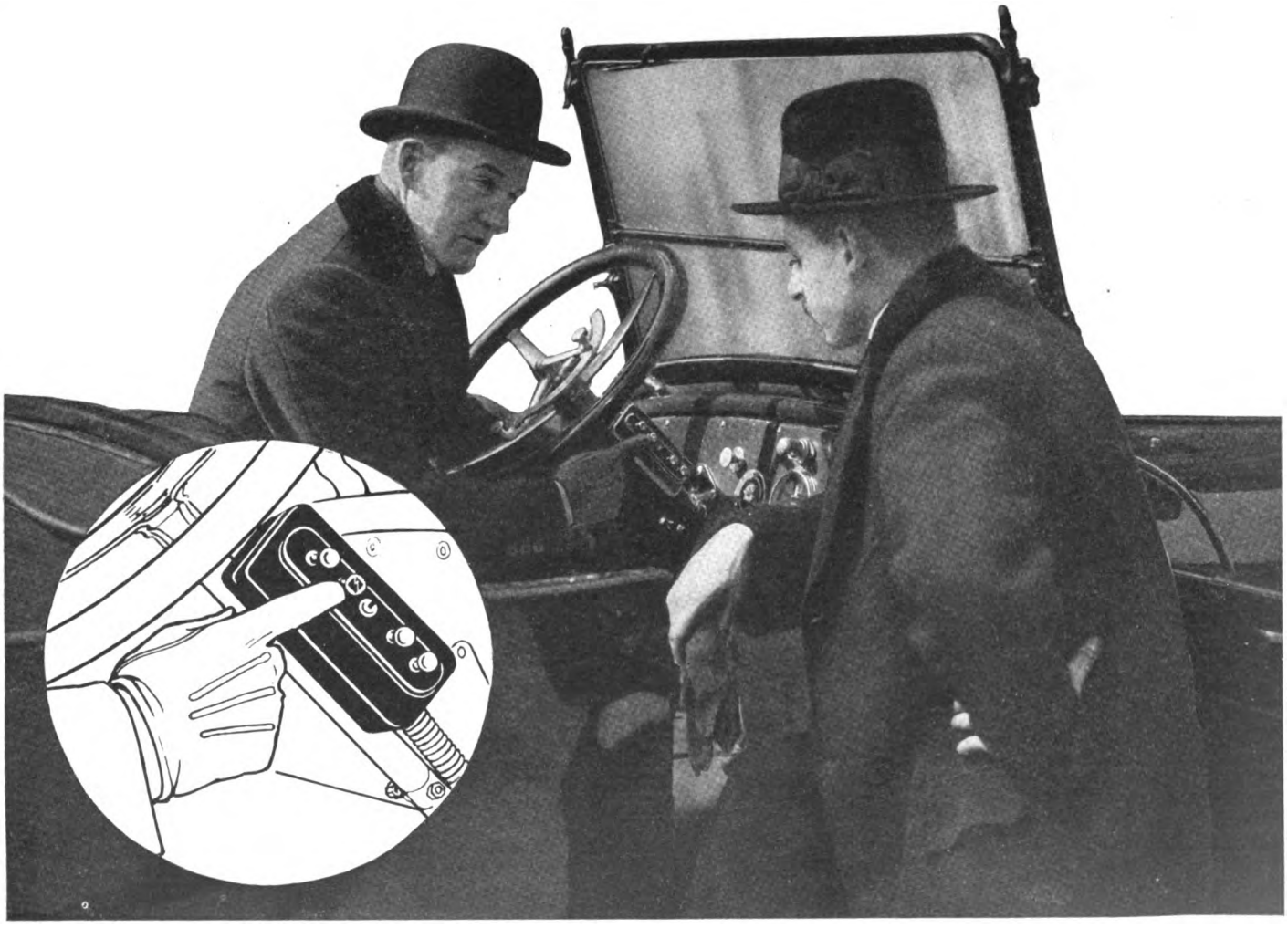
"You Need This Protection"

ORDINARILY if you should forget to switch off your ignition when you put your car up for the night you would find yourself with a "dead" battery in the morning. **Not so with a car equipped with Connecticut Automatic Ignition.**

The Automatic Switch prevents the battery from running down. It takes the penalty off your forgetfulness. Within a minute or two after you have stilled your motor this switch automatically breaks the ignition circuit and stops the flow of current from the battery. It is the only switch in the world which does.

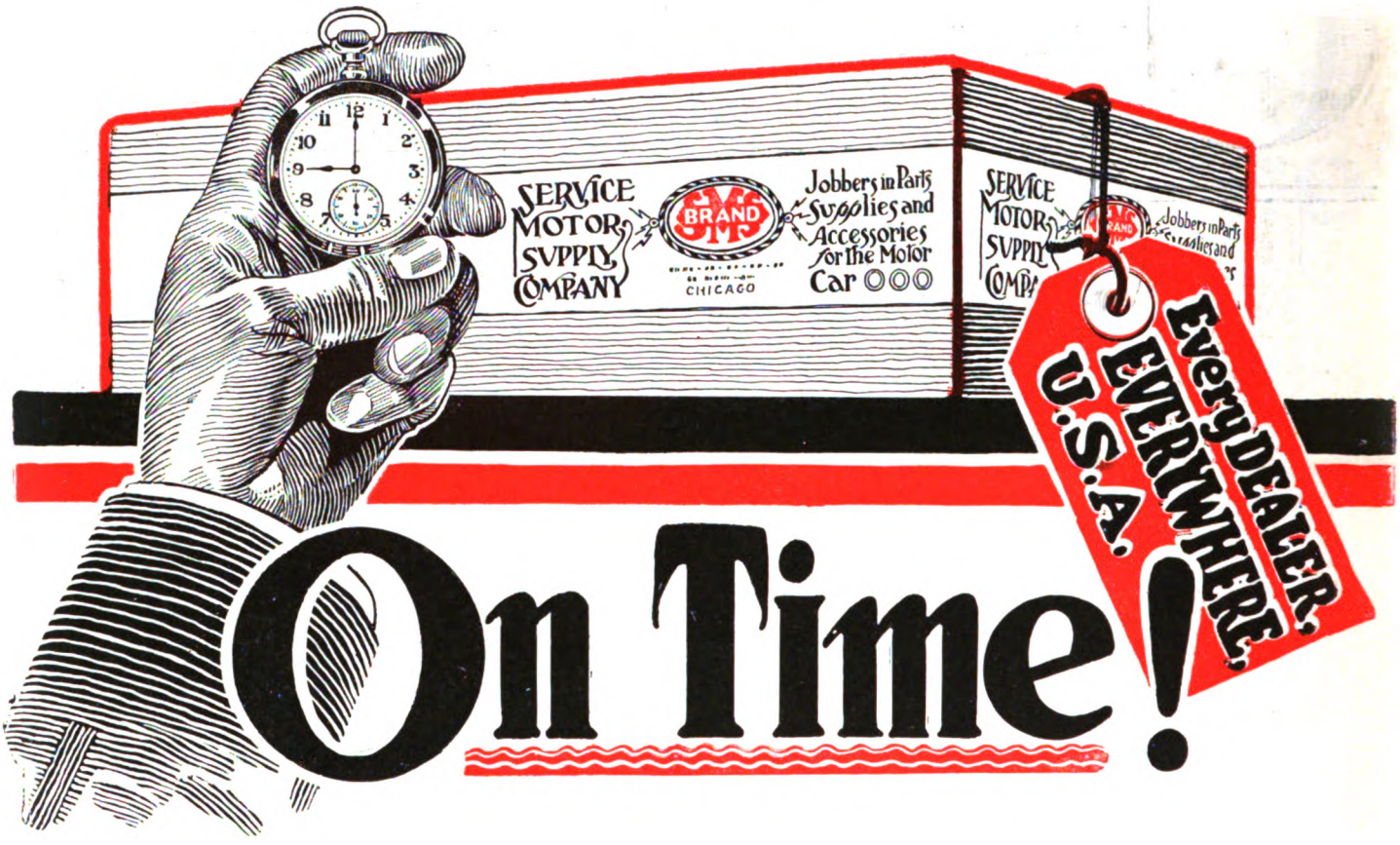
It never forgets. It never fails.

CONNECTICUT TELEPHONE & ELECTRIC COMPANY
Meriden Conn.



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SERVICE MOTOR SUPPLY Co. 1523-25-27-29-31 Michigan Blvd. CHICAGO, U.S.A.



What a comfort to know that your goods will arrive on time!

This assurance is only one of the many fine features of our SERVICE.

When you order from "SNAPS," The National Bargain

Directory of Auto Supplies, you are absolutely certain of prompt delivery. We guarantee to ship all orders within six hours from the time received.

Only an organization as large as ours could carry through such a schedule—and even for us it is made possible only because the big building we occupy entirely, gives us a floor space of over 50,000 square feet.

Our Low Price Made Possible by Cash Buying and Cash Selling

We are able to offer these real bargains, which are the wonder of the auto accessory trade, because we are actually selling millions of dollars worth of these goods every year. We buy in *enormous quantities*—and for *cash*. Also we sell for *cash*, this enables us to make rapid turn-overs, take small profits on individual sales—and trust to our great volume to take care of our net profits. This condition is appreciated by 30,000 keen dealers who make their monthly purchases from "SNAPS." The same opportunity is open to you.

Money Back Guarantee

Dealers tell us that the SERVICE MOTOR SUPPLY CO. is the most "*comfortable*" house to deal with. It has now become a generally known fact that our straight-forward guarantee of *money back*—any time, for any reason and no questions asked—is backed up by us rigidly in actual practice.

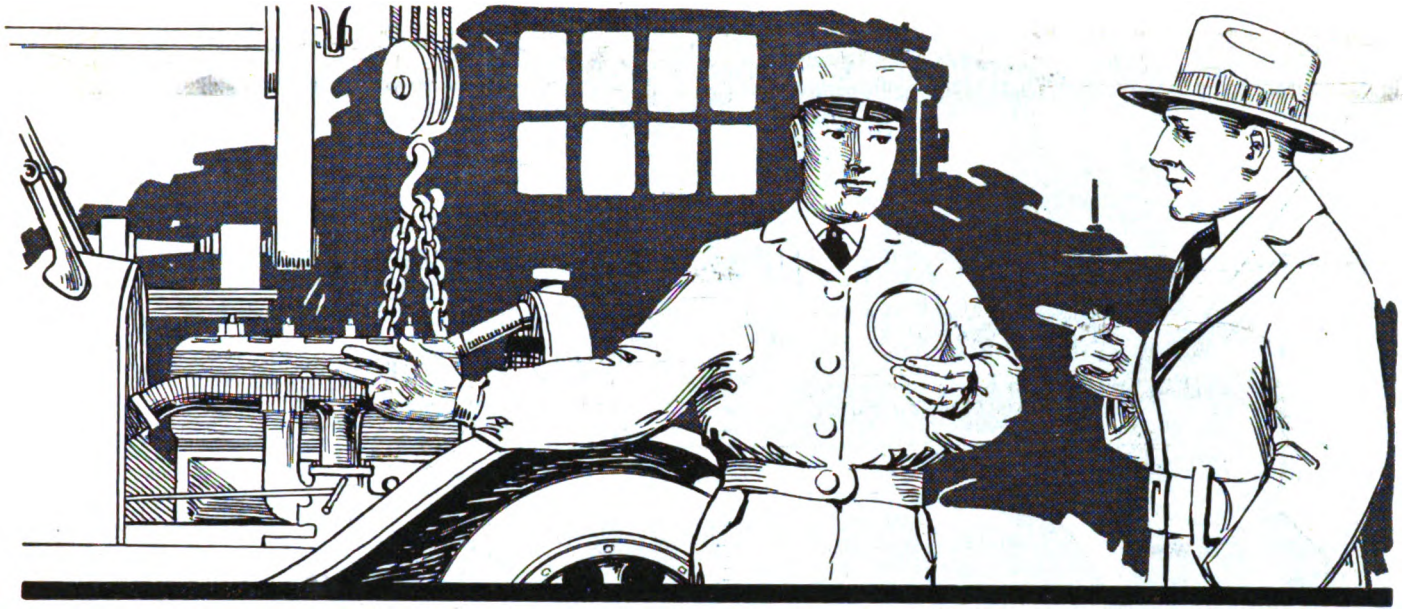
Dealers know that they can mail their orders to us and be sure of prompt, on-time shipment and absolute satisfaction in every way. Our well organized purchasing department is far more critical of the goods they buy than any of our customers are likely to be. If there is any fault to find with the goods, it is found *before* we ship them to you.

We Sell To Dealers Only

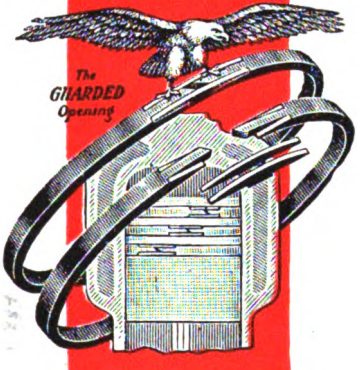
Only established merchants who buy to resell can buy from us. We absolutely protect the dealer—we will not compete against our own customers. If you have not yet bought from "SNAPS" you have a pleasant surprise in store for you. Send for a *free copy today!* Be sure to use your letterhead so that we may know you are a dealer and entitled to receive "SNAPS."

SERVICE MOTOR SUPPLY Co. 1523-25-27-29-31 Michigan Blvd. CHICAGO, U.S.A.

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Super Efficient Piston Rings



Standard Equipment on

PACKARD
MARMON
NATIONAL
HAYNES
KISSEL
SUN
PATHFINDER
CUNNINGHAM
AUSTIN
FEDERAL TRUCKS
CURTISS AEROPLANES
WEIDELY MOTORS
SAXON FOUR
SAXON SIX
HAL and others

At Overhauling Time Install 'BURD PISTON RINGS'

INSTALL them because they are super-efficient rings—the accepted standard by which all other piston rings are judged.

Accept the verdict of America's leading car, truck and motor manufacturers who use BURD Rings as regular equipment **despite the fact that they cost more than ordinary piston rings.** The marked improvement of car performance due to perfect compression, full power, increased mileage—**is worth** the nominal cost of BURD Piston Rings many times over.

Why run a car whose motor is up to only 50% to 60% of its latent possibilities? Get that extra per cent of power! BURD Piston Rings will do it!

Car Owners: Have your garageman or repairman install BURD Piston Rings **now.** Get the advantage of them **all** season. Accept no substitute.

DEALERS —— GARAGEMEN —— REPAIRMEN

Stock—recommend—push BURD Piston Rings. Every installation makes the car owner doubly appreciate your mechanical ability.

Get in touch with our nearest sales office, or write direct for detailed particulars.

Burd High Compression Ring Co.

ROCKFORD, ILLINOIS

SALES OFFICES

Albany, N. Y....1060 Madison Ave.
Boston, Mass.....889 Boylston St.
Buffalo, N. Y....810 Iroquois Bldg.
Chicago, Ill..1427 S. Michigan Ave.
Dallas, Tex.....819 Wilson Bldg.
Detroit, Mich..578 Woodward Ave.
Kansas City, Mo...230 Rialto Bldg.
Los Angeles,Cal..316-317 Hass Bldg
Milwaukee, Wis....813 Grand Ave.
Minneapolis, Minn.,
904 Marquette Ave.
New York City.....1864 Broadway
Peoria, Ill.....223 Masonic Temple
Philadelphia, Pa.,
406 Parkway Bldg.
Pittsburgh, Pa.,
904 East End Trust Bldg.
Portland, Ore..816-817 Lewis Bldg.
Rochester, N. Y.....210 East Ave.
St. Paul, Minn...149 W. Sixth St.
San Francisco, Cal.,
841 Phelan Bldg.
Seattle, Wash.....705 E. Pike St.

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HONESTY

THE success of the Dearborn One-Ton Truck Unit is built upon honesty—honesty in design, honesty in materials, honesty in construction, honesty in advertising, honesty in selling. The results of this honest policy under which the Dearborn is made are found in the big, sound, growing, money-making businesses which Dearborn Dealers have established.

The field for the Dearborn Unit has hardly been scratched—it is practically unlimited. In *your* town and territory there are many *sure* prospects for the Dearborn. General merchants, expressmen, lumber dealers, farmers, dairymen, truck gardeners, manufacturers, contractors, etc.—these people need the Dearborn and will buy it. Almost without exception they are people who wouldn't think of paying $1500 for a truck (the average price of a one-ton truck), but they are interested in the Dearborn Truck because it can be obtained for $350 and a Ford chassis, and will give them just as strong and dependable a one-ton truck, which they can operate at less expense than a horse and wagon.

$350 and a Ford, New or Old, Make a

FORD-DEARBORN One Ton Truck

The Dearborn Unit is as well and carefully made as any truck chassis on the market. It is manufactured in our own plant and we guarantee it to be right. It is a simple matter—the work of only a few hours—for an auto mechanic to attach the Dearborn Unit to a Ford chassis.

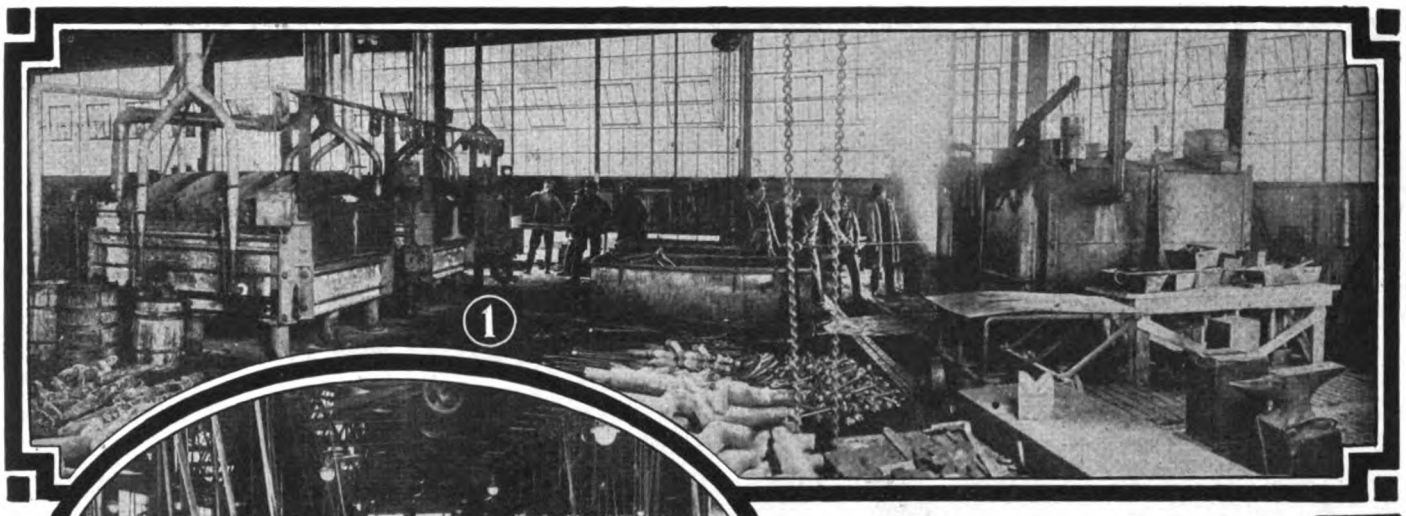
90% of load is carried on sturdy rear axle and heavy truck wheels. Full 9-ft. loading space; heavy artillery type wheels with guaranteed hickory spokes and felloes; solid rubber tires. Standard tread, same as Ford front wheels. Baldwin roller chains and Baldwin steel sprockets. First quality materials used throughout.

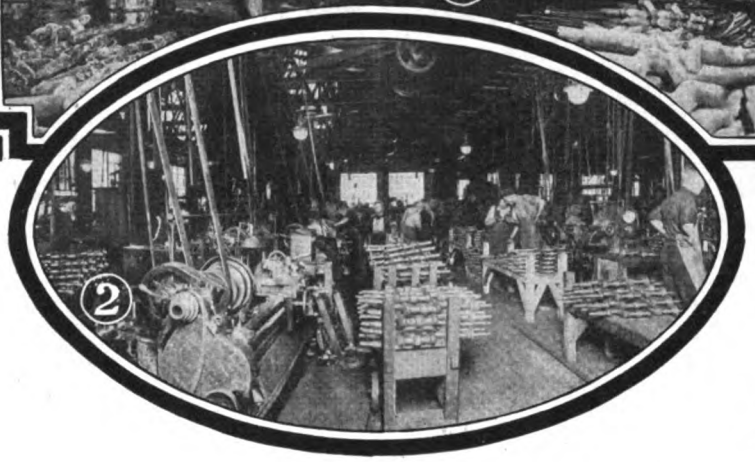
Remember this: The Dearborn Truck Company is *not* a stock-selling organization. It is a real manufacturing company with a big, modern factory, making carload shipments daily.

Write today for the Dearborn Dealers' Proposition.

Dearborn Truck Company, 1260-74 South Campbell Avenue, Chicago

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No. 1—Briscoe heat treating department where strength and endurance is added to Briscoe parts without adding to their weight.

No. 2—The interior of the Briscoe plant, which is devoted exclusively to the production of cam and crank shafts.

Sure Methods—
Make You *Sure* of the Quality

Infallible physical laws are behind the manufacture of every Briscoe part. It must make good because it is made good. **Certainty** is the greatest guarantee of quality.

From the time the metal is heat-treated until the car is road-tested Briscoe applies every refining art known in engineering—to insure reliability.

A crankshaft—for example—must be alternately hard and soft. Every Briscoe crankshaft is heat-treated according to a process which makes **certain** these exactly varying degrees of hardness and softness in the same piece of metal.

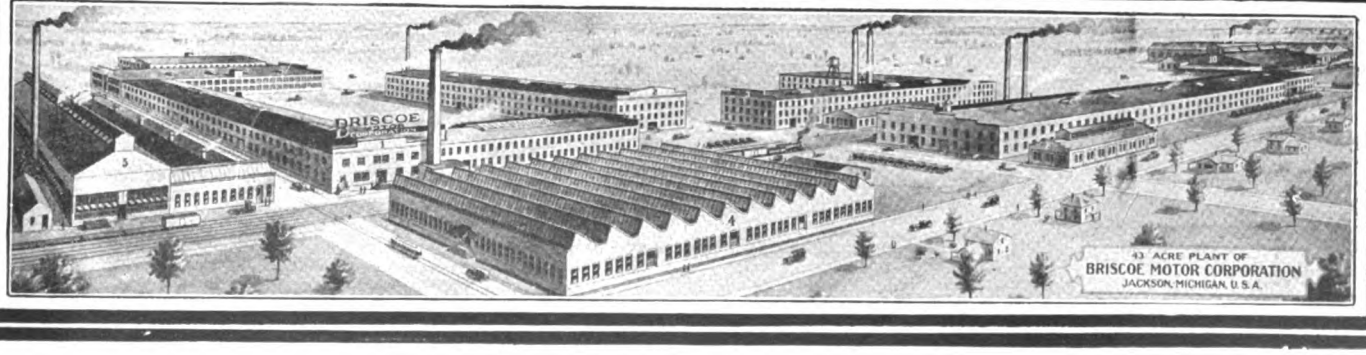
Because practically all Briscoe parts are made under Briscoe roofs the Briscoe value is possible.

Lead in Local Sales!

Leadership in manufacture means leadership in sales. The first big advantage to a Briscoe dealer is a larger profit per car; the second, quick deliveries. Wire for territory and proposition.

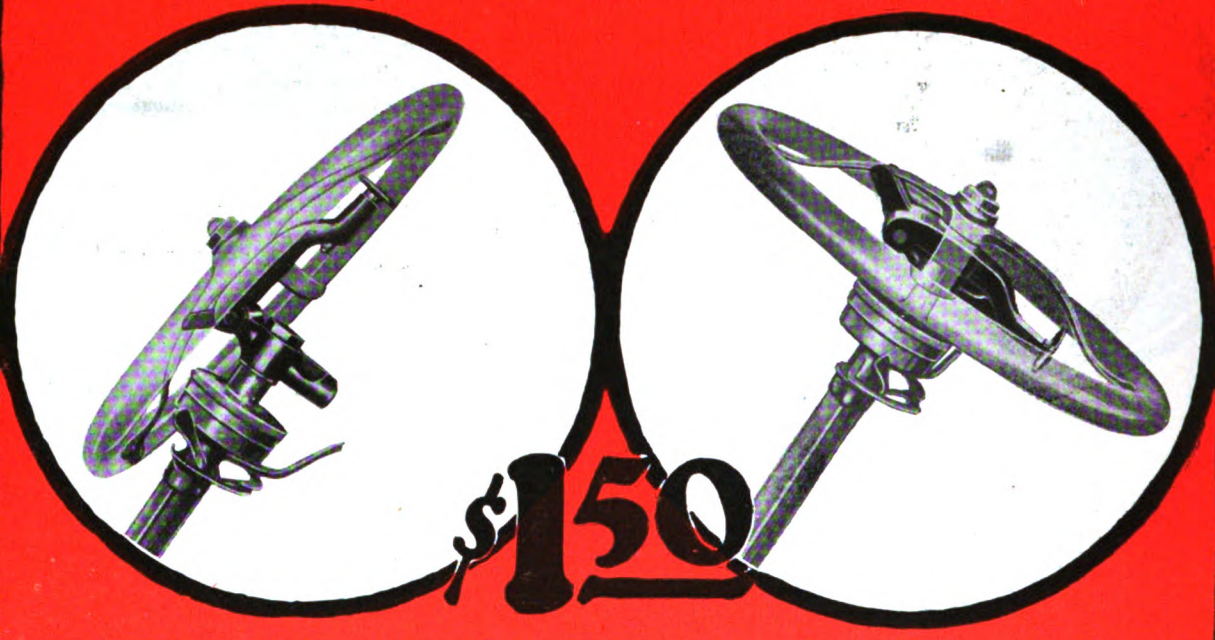
BRISCOE MOTOR CORPORATION, Dept. 43, Jackson, Mich.

BRISCOE $685
The Car With The Half-Million Dollar Motor FULLY EQUIPPED



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1,800,000 Prospects for This



WARNER "Wheeltilt" for Ford Cars

Picture 2 million Ford owners, who have long wanted something that cost too much, rushing after it at the right price.

That is just what is happening to dealers handling the WARNER WHEELTILT—the first tilting steering wheel for Fords at a Ford price.

Every Ford car needs a WHEELTILT. The biggest sale of tilting steering wheels has always been to Ford owners—even at exorbitant prices. At $1.50 there is no limit to the number of prospects except the ever-increasing number of Ford cars.

A necessity on Ford pleasure cars for comfort—on Ford commercial cars for speedy entrance and exit.

Utilizes the present Ford steering wheel. Tilts completely out of the way with a slight pull from the fingers. Absolutely firm and rattle proof when in latched position. Installed in five minutes by anyone who can use a wrench. No machine work. No extras. Makes the driver's seat as easy to enter as any seat in the car. Avoids necessity of passenger alighting from the car when driver enters or leaves the front seat.

WRITE FOR OUR LIBERAL AGENCY OFFER

at $1.50 *WHEELTILT* is the livest, best selling FORD accessory obtainable.

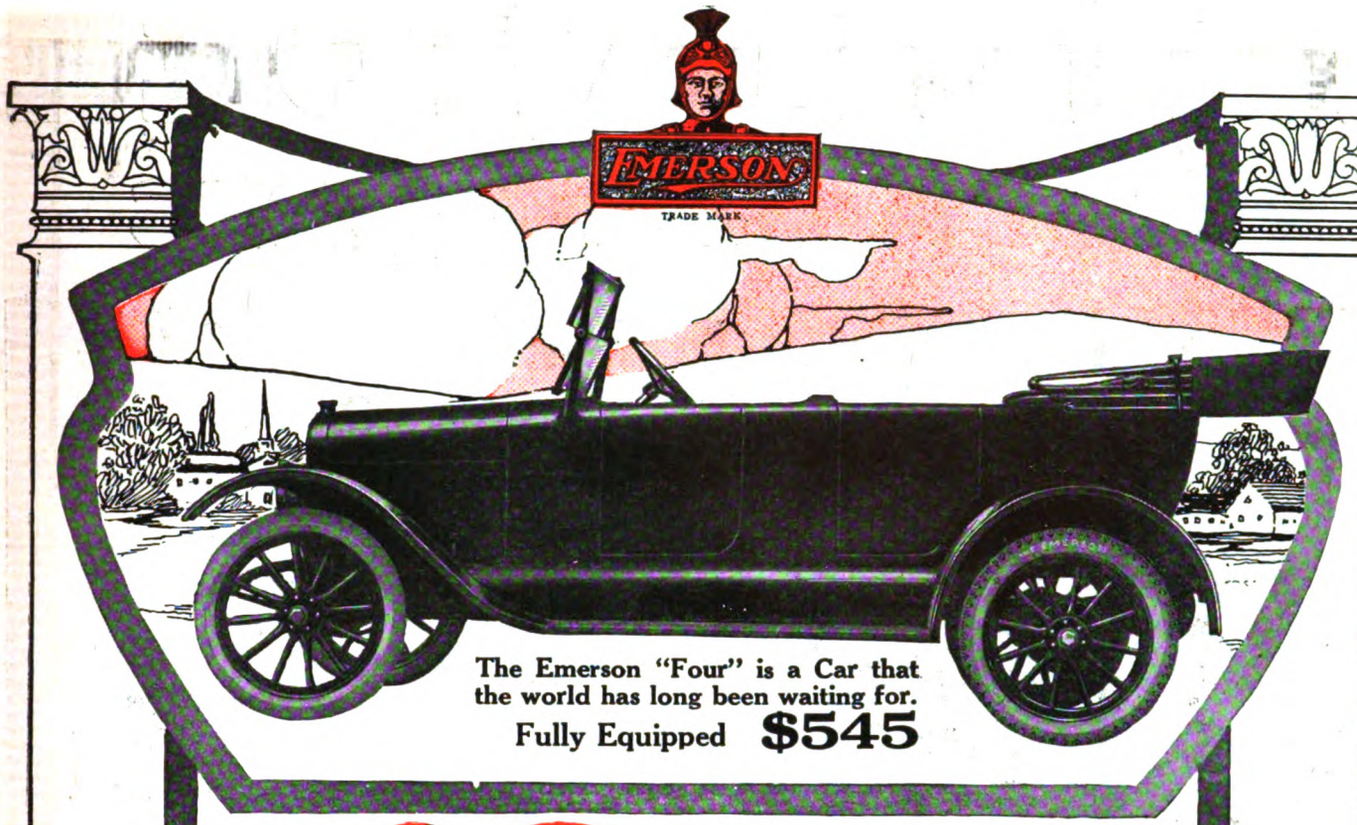
Cash in on it in your spring business.

Illustrated pamphlet on request.

WARNER GEAR CO., MUNCIE, IND.

Address all correspondence to Accessory Dept.

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The Emerson "Four" is a Car that the world has long been waiting for.
Fully Equipped $545

The EMERSON 4

The Lowest-Priced 5-Passenger 110-inch Wheelbase Car in the World.

THE EMERSON "FOUR" is a sensible car for the sensible man, who desires to stay within his means and at the same time enjoy the pleasures of motoring.

IT IS A SIMPLE, SAFE CAR that your wife or daughter can drive easily and confidently.

IT IS A COMFORTABLE CAR, with plenty of leg room, with efficient springs and sufficient length of wheelbase. It enables you to "tour" without tiring yourself and passengers, or alighting with stiff, cramped limbs at the end of the journey.

IT IS A GOOD-LOOKING CAR, low-hung, stream-line, handsomely finished and equipped.

IT POSSESSES THOSE DESIRABLE QUALITIES of graceful lines, exceptional roominess, ease of riding, and plenty of power with economy.

The Emerson Motors Co., Inc., Kingston, N. Y.

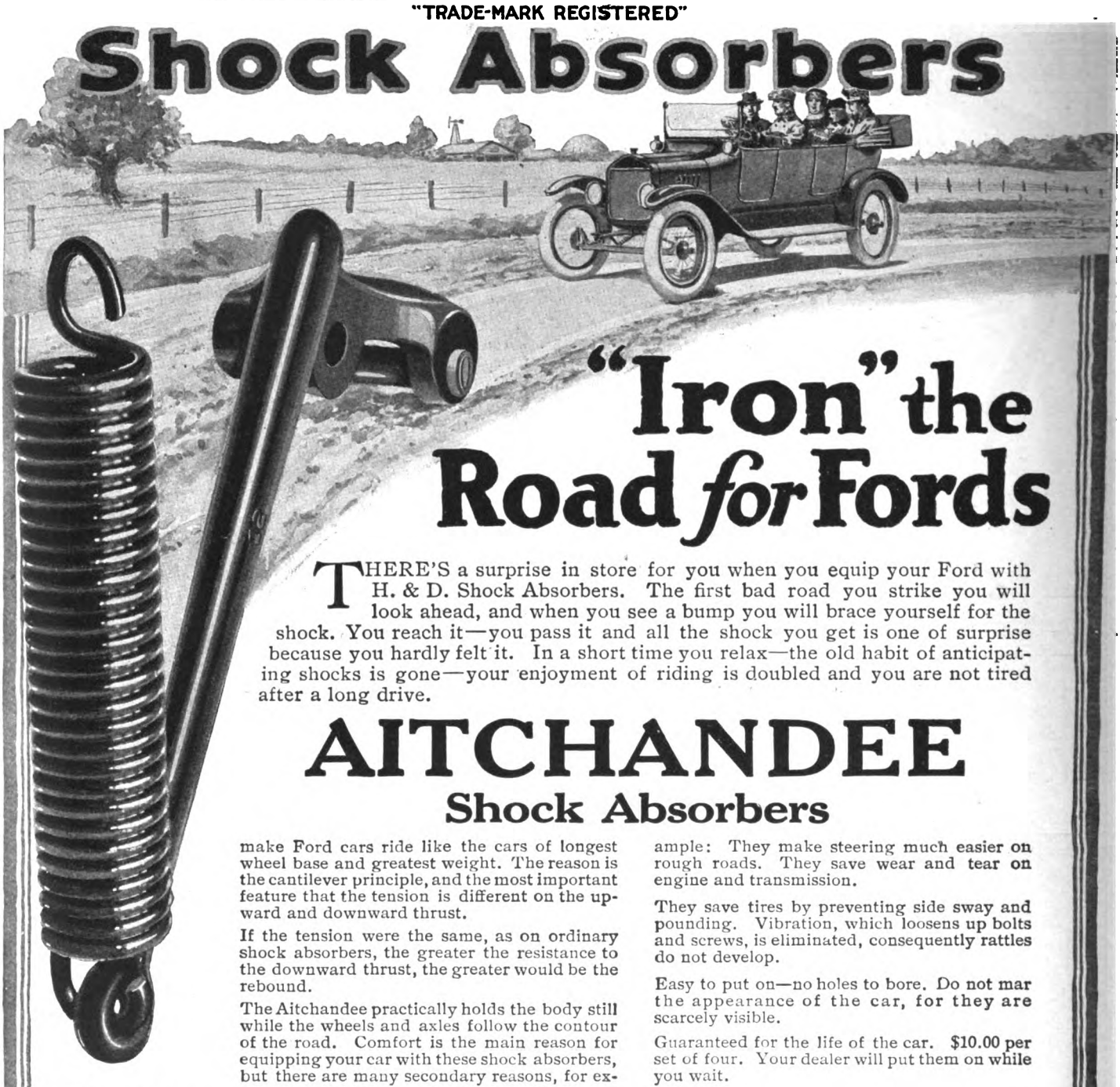


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AITCHANDEE

"TRADE-MARK REGISTERED"

Shock Absorbers



"Iron" the Road *for* Fords

THERE'S a surprise in store for you when you equip your Ford with H. & D. Shock Absorbers. The first bad road you strike you will look ahead, and when you see a bump you will brace yourself for the shock. You reach it—you pass it and all the shock you get is one of surprise because you hardly felt it. In a short time you relax—the old habit of anticipating shocks is gone—your enjoyment of riding is doubled and you are not tired after a long drive.

AITCHANDEE
Shock Absorbers

make Ford cars ride like the cars of longest wheel base and greatest weight. The reason is the cantilever principle, and the most important feature that the tension is different on the upward and downward thrust.

If the tension were the same, as on ordinary shock absorbers, the greater the resistance to the downward thrust, the greater would be the rebound.

The Aitchandee practically holds the body still while the wheels and axles follow the contour of the road. Comfort is the main reason for equipping your car with these shock absorbers, but there are many secondary reasons, for example: They make steering much easier on rough roads. They save wear and tear on engine and transmission.

They save tires by preventing side sway and pounding. Vibration, which loosens up bolts and screws, is eliminated, consequently rattles do not develop.

Easy to put on—no holes to bore. Do not mar the appearance of the car, for they are scarcely visible.

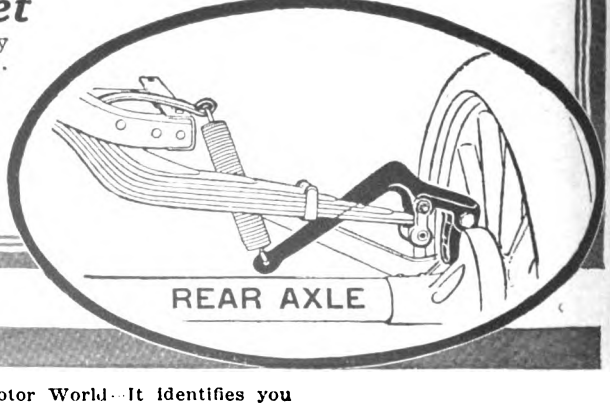
Guaranteed for the life of the car. $10.00 per set of four. Your dealer will put them on while you wait.

If your dealer cannot supply you — ***Write Us for Booklet***

and we will see that you get your set promptly. Don't accept any but the Aitchandee. 100,000 sets ironing the roads for Fords today.

H. & D. Company, Inc., Goodland, Ind.

DEALERS: The Aitchandee Shock Absorber is right in structure, already tremendously popular, advertised nationally. It will rapidly build a profitable addition to your present business. Write us for proposition at once.



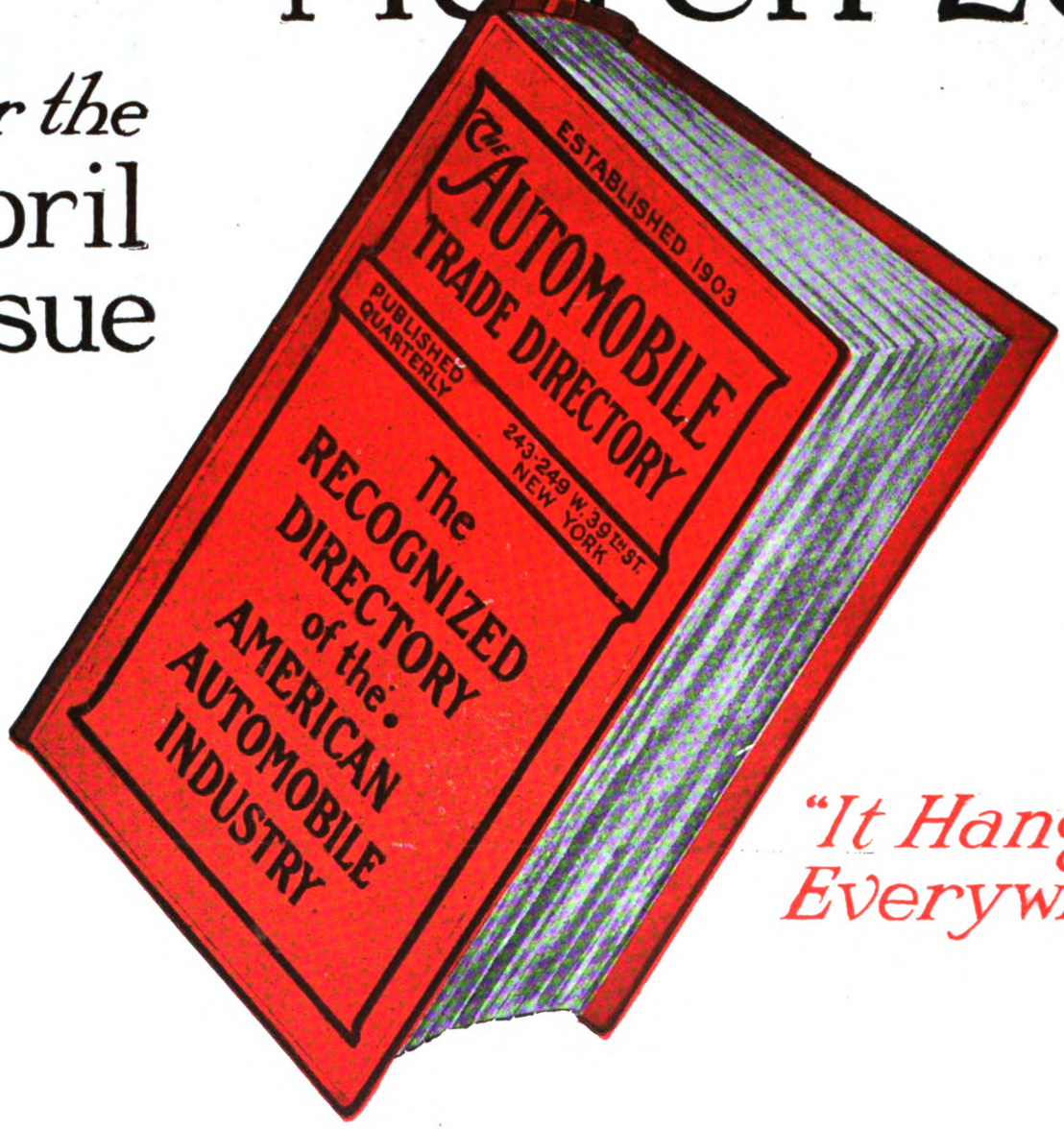
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Forms Close March 20th

for the April Issue



"It Hangs Everywhere"

Leaving your advertisement out of The Automobile Trade Directory would be like refusing requests for your catalog from 50,000 buyers just when they want to buy.

THE AUTOMOBILE TRADE DIRECTORY

243 West 39th Street, New York City

When writing advertisers please mention Motor World—It identifies you

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DELION

DELION TIRES are made by the master tire builders. Delion Tires are made in the Thropp factory—and everywhere in the United States whese tires are made, Thropp is a name to conjure with. The skill to make—and the **will** to make—the finest tires are ours—and we make them.

The Proof

is being given in every section of the country in which we have distribution. If you can't buy DELION TIRES in your locality it is your misfortune—and your local dealers are "missing a bet."

For DELION TIRES are as fine as Sea Island Fabric and best rubber, scientifically treated and compounded by master work nen, can make them. Tough treaded, a real non-skid, with the bounding energy of rubber supported by a construction that is worthy of our tire engineers,—they know no superior, and acknowledge few equals.

Ask your dealer to put one on your spare rim now—



Dealers

Here is a chance for you—if you can furnish a real outlet and are progressive enough to assure us of a growing volume. Exclusive territory, effective co-operation that moves the tires, a 5000-mile adjustment basis, a reasonable list and a scale of discounts that shows a good profit to distributor and dealer — these are the features of our selling plan.

Our Proposition

was made after we found what the livest distributors in the country wanted. It is right—and it is yours, if you can satisfy our reasonable requirements.

Write at once—and get an option on your territory.

DELION TIRE & RUBBER CO., Inc.
Main Office:
1922 Broadway, New York
Western Office:
3449 Michigan Ave., Chicago
Factory: Trenton, N. J.

TIRES

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WOODWORTH TROUBLE-PROOF // TIRES //



GUARANTEED AGAINST PUNCTURE or blow-out for 5,000 miles!

GUARANTEED AGAINST ORDINARY WEAR and tear for 5,000 miles!

A TIRE OF THE HIGHEST CLASS in all respects—made of the finest Para rubber, the best selected Sea Island cotton—built in accordance with the best methods known to the industry.

NOT A FREAK TIRE—not a loaded or armored tire.

A LIGHT, LIVELY, SPRINGY, fast tire of unusual merit as such—

AND—in addition to this—

IT IS MADE PUNCTURE PROOF by the specially prepared, non-heating, chrome leather strip fitting perfectly on the inside of the casing and protecting the inner tube.

ITS PRICE IS HIGHER—but its cost is less!

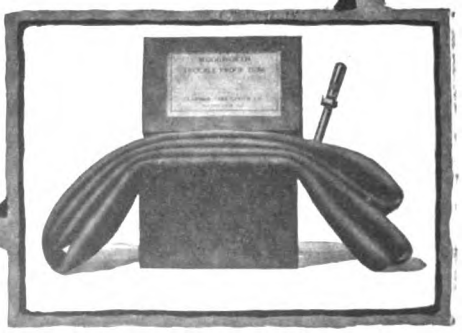
WOODWORTH TROUBLE - PROOF TUBES

are stretchy, tough, cross-plied, non-tearable tubes of highest quality red rubber, antimony cured.

Properly shaped, non-porous, perfect-fitting, they make even a poor casing deliver its utmost—in combination with a WOODWORTH casing, they are unequalled!

WOODWORTH MANUFACTURING CORPORATION
NIAGARA FALLS
NEW YORK

Canadian Factory
Niagara Falls, Ontario



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The Dealer The Jobber The Manufacturer



What "F.O. B." Means

That the shipper is responsible for the delivery of a shipment, properly packed, to the transportation company only, and not to the point of destination.

That, when the transportation company issues him a receipt in the form of a bill of lading, the transportation company then accepts the entire responsibility of the delivery of the shipment to the point of destination.

That, if a shipment is damaged, delayed, or lost in transit, the transportation company, not the shipper, should be looked to for adjustment by the person or concern who ordered the goods shipped.

Be careful to see that every package shown on the bill of lading is received and is not damaged. If delivery is incomplete or damaged, secure the transportation company's acknowledgment on your freight bill and file your claim with the transportation company.

If a shipment is delayed, ask the shipper to trace. Do not duplicate the shipment unless you understand you should promptly pay for both shipments. Your trouble is caused by the transportation company and not the shipper.

Do not ask the shipper to make good any loss or damage caused by the transportation company or your own negligence in not checking carefully the number of packages received. If the transportation company is at fault, they will honor any just claim —if it is your own fault, then keep mum and don't try to make the shipper the goat.



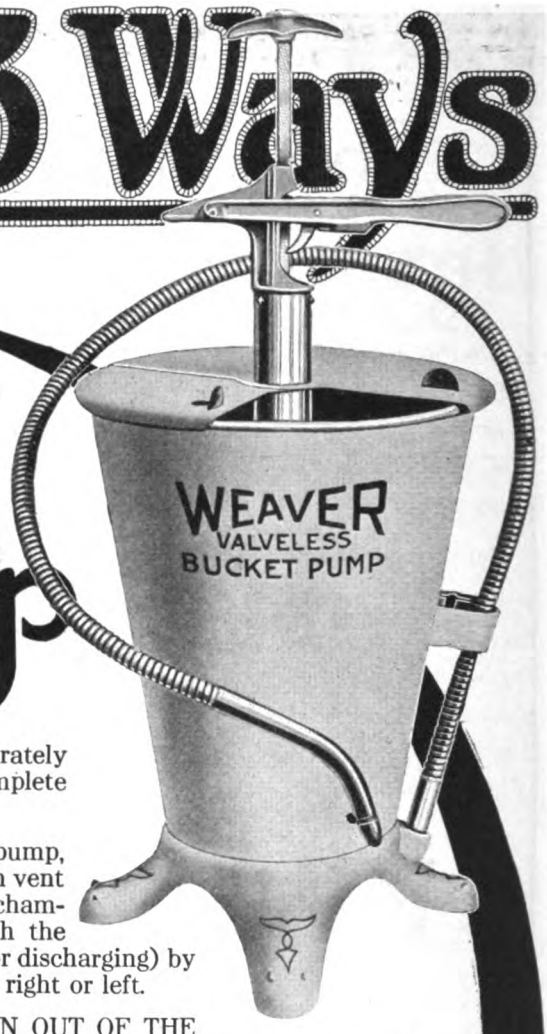
Look for this emblem on the stationery of the houses you deal with.

The National Association of Automobile Accessory Jobbers

City Hall Square Bldg. Chicago, Ill.

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There are 3 Ways of using The WEAVER VALVELESS Bucket Pump





THE LUBRICANT CAN BE PUMPED FROM THE BUCKET DIRECTLY INTO THE CAR—and accurately measured as it is delivered. One complete discharge measures one pound.

There is no valve employed in this pump, as is true of other suction pumps. An open vent at the bottom of the brass barrel or inner chamber is thrown into communication with the bucket (for filling) then with the hose (for discharging) by simply turning the handle ¼ turn to the right or left.



THE LUBRICANT CAN BE DRAWN OUT OF THE DIFFERENTIAL or transmission of the car and discharged into a separate receptacle WITHOUT disturbing the contents of the Bucket.

This is accomplished by letting the vent (referred to above) remain in communication with the hose while the used grease is drawn into the barrel of the pump and again discharged through the hose into the separate receptacle.

The used grease gets no further than the inner barrel so does not contaminate the contents of the main bucket.



A LUBRICANT OF A DIFFERENT QUALITY THAN THAT CONTAINED IN THE BUCKET-PUMP CAN BE PUMPED INTO THE CAR.

This is accomplished in the same manner as described above. The nozzle of the hose is inserted into the can of foreign lubricant, the barrel of the Pump drawn full and discharged into the car without disturbing the contents of the Bucket-Pump.

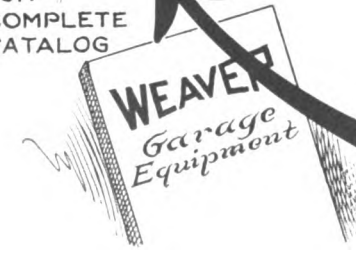
Another Great Advantage

of this "valveless" construction is that the unobstructed opening in the Pump barrel enables the Weaver Bucket-Pump to handle heavier lubricant than other suction pumps employing a trap valve.

Indestructible Metal Hose

This Pump is equipped with a flexible steel hose instead of the usual rubber hose. Grease and oils do not affect it.

WRITE FOR COMPLETE CATALOG



WEAVER MFG. CO.

2165-79 S. 9th Street
SPRINGFIELD, ILLINOIS



Weaver Auto Ambulance

Will tow your crippled cars safely, quickly and economically. Fits either axle.



Weaver Towing Pole

Gives a rigid connection between the two cars and eliminates the dangers of the tow line. The spring absorbs all shocks. Cars can be backed when necessary.

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The Dealer Who Sells

Batavia Gray Tubes

as well as Batavia casings has a *triple* hold on his customers.

Batavia Gray Tubes are made of tough elastic rubber that does not become porous or deteriorate rapidly. They are full size, with extra wall thickness. They enhance the service of a good casing: inferior tubes shorten its life.

Batavia Gray Tubes not only wear well, but they repair well.

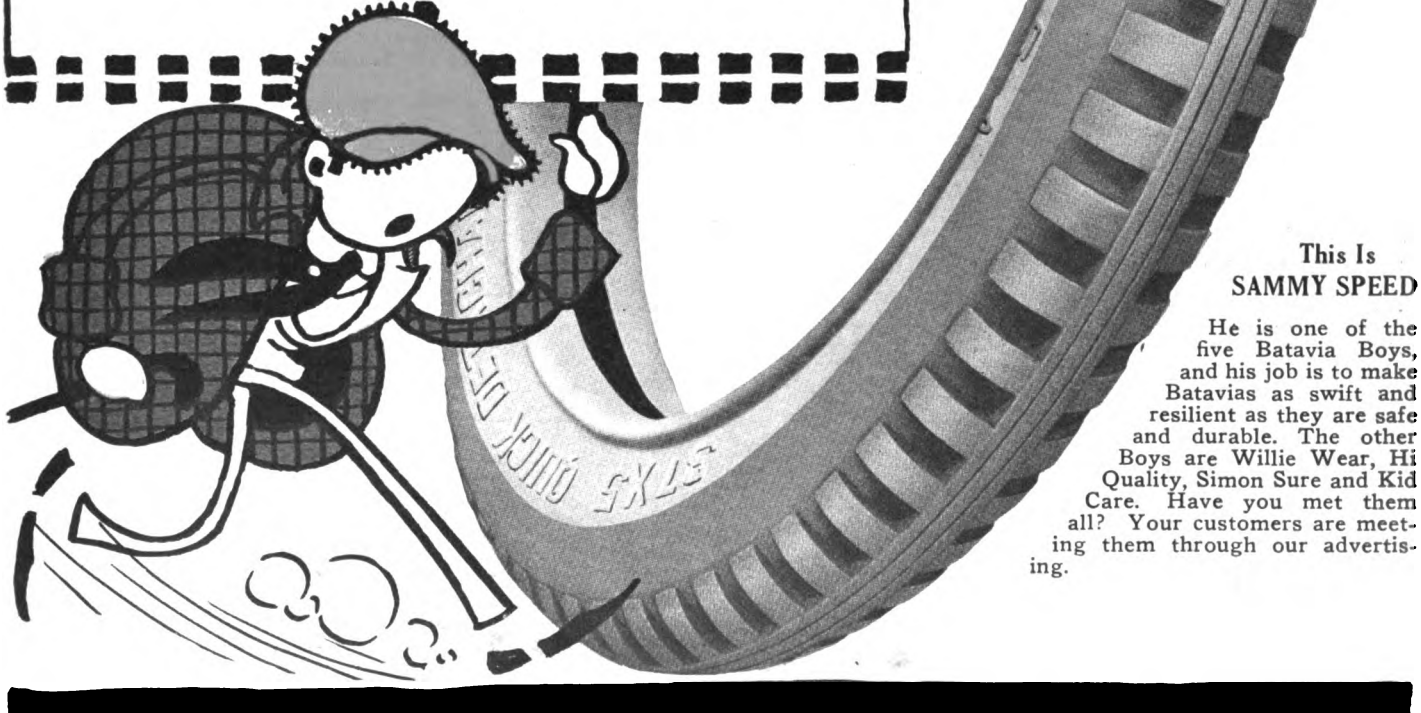
And tubes, tires and repairs all react on one another. If you have sold a customer a good tube, he is likely to come to you for his next casing. If you have done a good repair job, he is likely to remember it when in the market for tubes and casings. The dealer who sells Security Tires and Batavia Gray Tubes thus gets his trade all three ways.

Last, but not least, Batavia dealers have protected territory—the profit margins are assured.

Do you live in Illinois, Kansas or Missouri? Then get one of these valuable territories now open.

ILLINOIS	KANSAS	MISSOURI
Peoria	Topeka	Kansas City
Springfield		

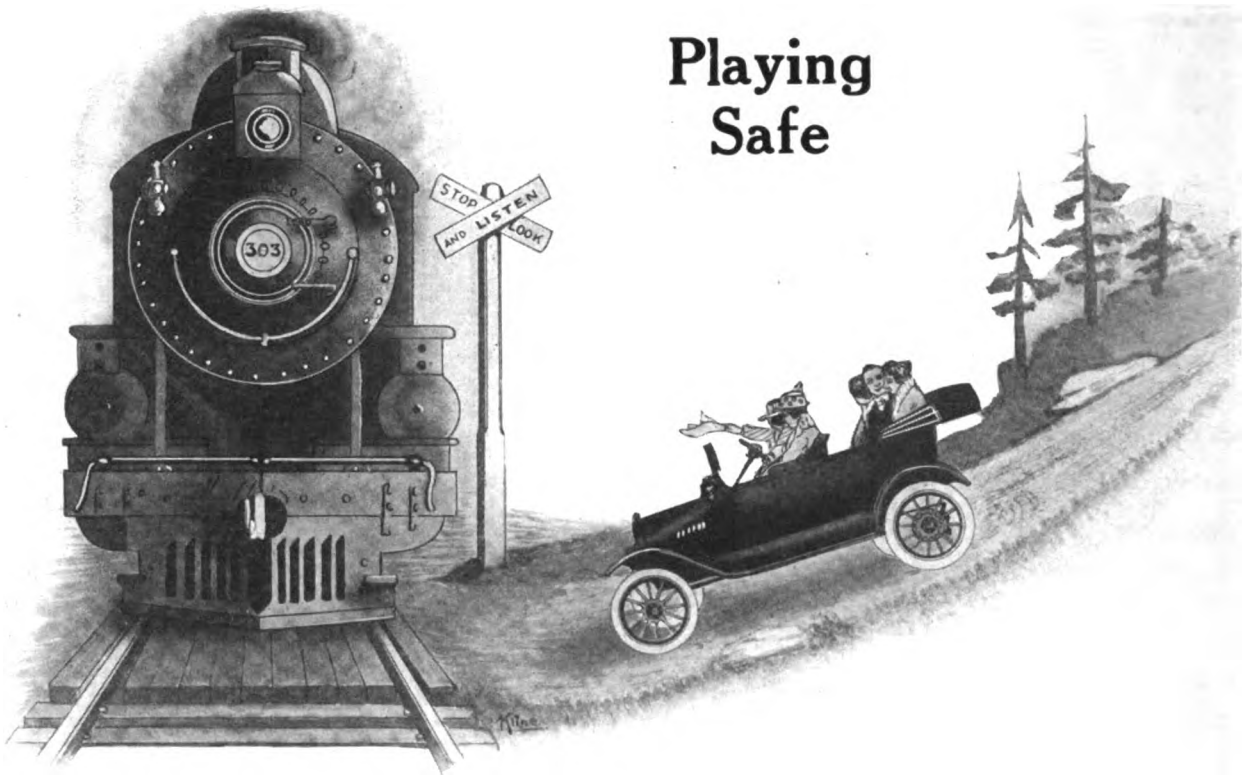
THE BATAVIA RUBBER COMPANY
Factory at Batavia, New York



This Is SAMMY SPEED

He is one of the five Batavia Boys, and his job is to make Batavias as swift and resilient as they are safe and durable. The other Boys are Willie Wear, Hi Quality, Simon Sure and Kid Care. Have you met them all? Your customers are meeting them through our advertising.

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This Car Is Equipped with an Improved Emergency Brake

The *Improved Emergency Brake is not an accessory but an absolute necessity for Safety.*

Mr. Fordowner:—You have the most practical and the most economical car built, and we want to congratulate you on your good judgment in selecting a Ford Car.

We have, however, a quarrel with you, and that is your carelessness with your Brakes, allowing your Emergency Brakes to become worn and neglecting to have them renewed. You say, "My foot Brake is good and that is sufficient;" but let us presume you break an axle or strip a gear either ascending or descending a hill, then what? It means an accident which has in many cases made cripples for life, and death in not a few cases.

The Improved Emergency Brake is a large external Brake, lined with the best of brake lining, so that a slight pressure on this Brake will lock your wheels instantly and hold the load on any hill.

Why take a chance? Serious accidents are happening every day, and tomorrow *it might be you and your family* who will pay the penalty for negligence.

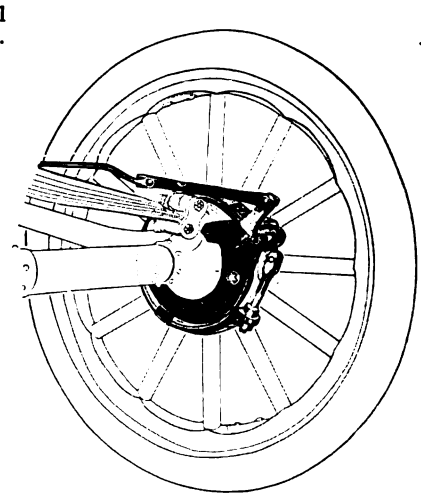
Go to your nearest Dealer and have a set installed to-day. The price is $10.00.

Or, if your dealer can not supply you, mail us your check or Money Order for $10.00 and we will express you a set, charges prepaid.

They are light in weight, each set packed in a neat carton and easy to install. You can install them yourself in a few minutes.

IMPROVED EMERGENCY BRAKE

Mr. Dealer: Our co-operation from the Home Office will sell you fifty per cent of the Ford Owners in your district. Write for our Dealers' Proposition.



Fill out and mail this to-day

COUPON

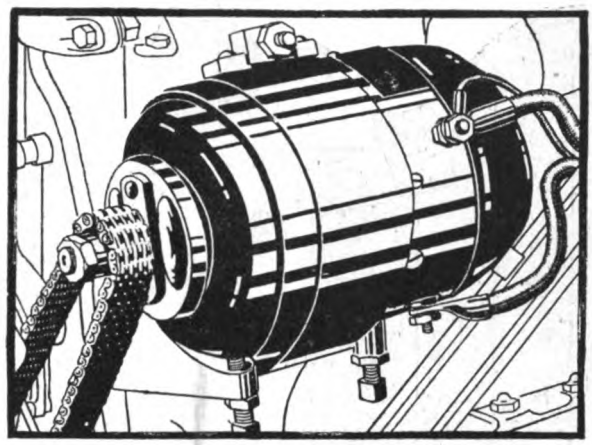
L. A. Leathers Co.,
Brookville, Pa.

Gentlemen: Enclosed please find $10.00, for which please ship me a set of "Improved Emergency Brakes" for Fords.

Name .....

Address .....

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Dealers:—Why Not Sell the Genemotor

TRADE MARK

"It Starts Your Ford and Lights It Too"

THERE are over 1,750,000 FORD CARS in service. 533,921 were built last year. 700,000 is the mark for 1917—How many FORDS in your town?—How many have starters?—How many could you sell if you tried? Won't you write for the agency in your city?

GENEMOTOR is the ideal Ford Starter. It is built by the General Electric Co., the leading electric motor specialists. It is easy to instal, has ample power, is ready when you are ready. "U S L" Battery Standard Equipment. It is starting convenience and lighting protection.

Prompt delivery of all orders guaranteed.

Built by the General Electric Company.
Price $85 f. o. b. Lynn, Mass. Sold everywhere.

A. J. Picard & Co., 1721 Broadway, New York

When writing advertisers please mention Motor World—It identifies you

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Sleep— soundly... ..comfortably

The privilege of sleeping right in your own car, wherever you may be when bed time arrives; sleeping as comfortably as at home—right out in the open, breathing the pure country air and at the same time being protected from the wind and weather, THESE ARE THE PRIVILEGES BROUGHT TO THE TOURIST, THE CAMPER, THE HUNTER AND THE FISHERMAN BY THE "ANYCAR" AUTO KOT.

It is indispensable to enjoyable, healthful, economical travel by automobile. It makes touring a pleasure without a drawback.

ANYKAR -AUTO-KOT-

Whether you are going on a long trans-continental tour, or simply out for a week-end trip, the "ANYCAR" enables you to take your own hotel with you. It carries out the quality of individuality and distinctiveness that is the natural right of the automobile traveler. THE BEST IS NONE TOO GOOD FOR THOSE WHO TRAVEL BY AUTOMOBILE, AND THE BEST CAN BE HAD ONLY BY BEING INDEPENDENT, WITH AN "ANYKAR."

Many devices have been put on the market to fill the need of an automobile bed, but they have been either too bulky or not comfortable. In the "ANYKAR" we have a combination of compactness and comfort that is a real pleasure.

Comfortable....

The Kot lies perfectly level; the canvas is in complete suspension so that the occupant does not touch any part of the frame. THERE IS AMPLE ROOM FOR A LARGE PERSON IN AN "ANYKAR" Auto Kot.

Convenient....

This Kot can be placed in position in less than 1 minute. Simply unfold it and place it on the backs of the seats, spread your blanket and go to sleep soundly and comfortably.

Fits ANY CAR....

The forward brace moves back and forth on the frame so that the Kot will fit any 5 or 7 passenger car. The Kot rests on the leather of the seats, supported by curved rests which do not mar the leather. There is ample room above the Kot even in the smallest car made.

takes up very little space

When not in use the Kot folds to a size of 2 ft. x 3 ft. and fits snugly in the front of the tonneau, out of the way and easy of access. When in position the Kot is 6 ft. long by 2 ft. wide and weighs less than 15 lbs. Made of ½ in. iron tubing, capable of standing five times the weight that can ever be placed on it.

FREE details....

Write for complete detailed description of this boon to automobile travelers. The price of the Kot will be saved the second night out. Those who have used them would not be without one. See if your dealer has them in yet, and in the meantime let us send you full information, or fill your order direct.

DEPT. 17

Peoria Auto-Kot Co. Peoria, Ill.

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Doesn't It Stand To Reason That You Can Repair An Engine More Efficiently If You Can Turn It to Any Position?



Portable Stand in Horizontal Position with 4-Cylinder Motor, Showing Use of Three-point Suspension Bar.

More efficiently means that you can do the work better, do it quicker, do it more accurately, do it with no danger to the workman or damage to the engine, etc., by being able to get at every part easily, without trouble, in a perfectly natural way.

You do not have to stoop and cramp yourself or lay on your back with the

Manley Every Way Engine Stand

You do the work standing up because you can turn the engine every way, making it a pleasure to work on any part of it.

Look at the cut. You notice that there is nothing to obstruct the workman—he can get at any part of the engine without hindrance.

You notice the absence of all unnecessary beams, cross pieces, gear wheels, levers, braces, etc.

You notice the construction is practically the same as the Chassis frame, and is close coupled, rigid and heavy to properly support the engine so that it does not shake and spring while the work is being done.

You notice that it is narrow at the base so that the workman can stand close to the engine and work naturally without bending over. He can see what he is doing, no guess work.

You notice how easily and quickly the engine can be mounted—slide the movable head along the sills to the proper width, place engine on the cross arms, bolt down by the regular brackets through any of the 100 holes provided.

The Manley is not a single purpose stand for one make of motor only, but mounts any type of motor suspension—4 point, 3 point or Ford. The adjustments are all universal.

Holds an engine in any desired position, 100 if wanted, and is locked rigidly in each position.

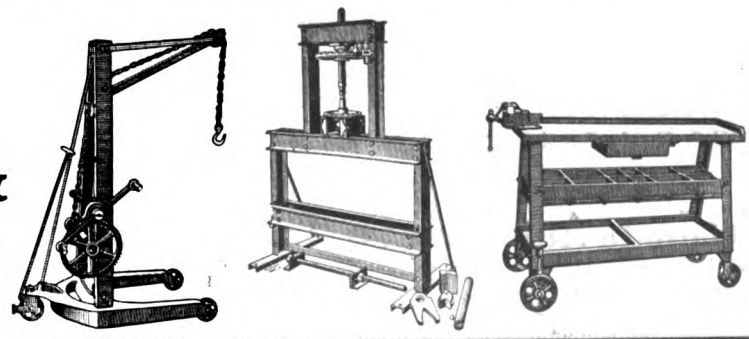
In use by some of the largest Manufacturers, Garages and corporations in the country.

Price, with complete equipment—Stationary $37.00, Portable $49.00.

Ask your jobber or write direct for complete catalogue No. 33-M and discounts.

Manley Garage Equipment will double the efficiency of your shop and make repair work pay

Portable Floor Cranes
Universal Auto Press
Portable Benches

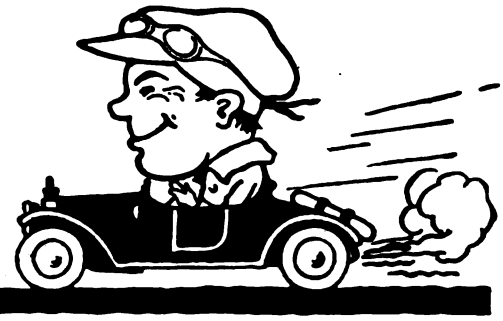


The United Engine & Manufacturing Co.

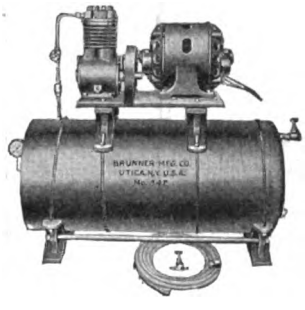
HANOVER, PA.

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He seeks the Garage that is Brunner-ized This Motorist who is Brunner-wised



Yes, Mr. Garageman, the Brunnerwise Motorist Seeks the Brunnerized Garage Because He Knows that It Is the One Place Where He Can Depend on Efficient and Unfailing Service Such as He Knows Brunner Service to Be



He seeks the Brunnerized Garage because he knows that the garageman who installs Brunner Service has figured on something else besides the saving of a few dollars; he knows that the Brunnerwise Garageman has the welfare of his patrons at heart, and that the rest of his equipment is generally of the same high standard of efficiency as Brunner Equipment.

He is a firm believer in reciprocity, too, Mr. Garageman, and is always ready to spend his good money with you for supplies in return for that efficient service which is always indicated by the Brunner Sign.

We will tell you more about the Brunnerwise Motorist in this magazine next week, Mr. Garageman, and—in the mean time you will find it to your interest to

WE USE A BRUNNER AIR COMPRESSOR
FREE AIR
FOR YOUR CONVENIENCE

INVESTIGATE THE BRUNNER AIR COMPRESSOR

Write for our No. 14 Catalogue and Garageman's Handbook on Compressed Air and let us send you the name of the Brunner Jobber who covers your town.

BRUNNER MANUFACTURING COMPANY

Main Office and Plant: Utica, N. Y. Cincinnati Branch: 419 First Natl. Bank Bldg., Cincinnati, Ohio

SPRINGFIELD TYPE BODIES

We can make immediate delivery of our Seven Passenger, Four Door Permanent Roof Bodies for the following 1917 chassis:

Packard Touring, 2-35 Locomobile, 38 and 48; Pierce-Arrow, 48; Owen-Magnetic, 136" WB.; Cadillac, 132" WB.; Marmon, 34; Stearns-Knight, 8 cylinder.

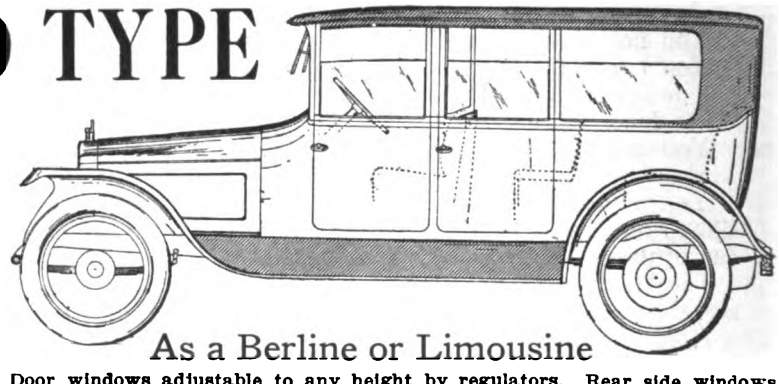
Our Re-designed Springfield Type Body is the last word in Convertible Body construction. It is the lightest body of its kind. We build same to fit any chassis.

We manufacture five and seven passenger Town Car, five and seven passenger two door Sedan and three and five passenger Coupe Bodies of the Springfield Type, Re-designed construction.

High Grade Special Bodies built to order.

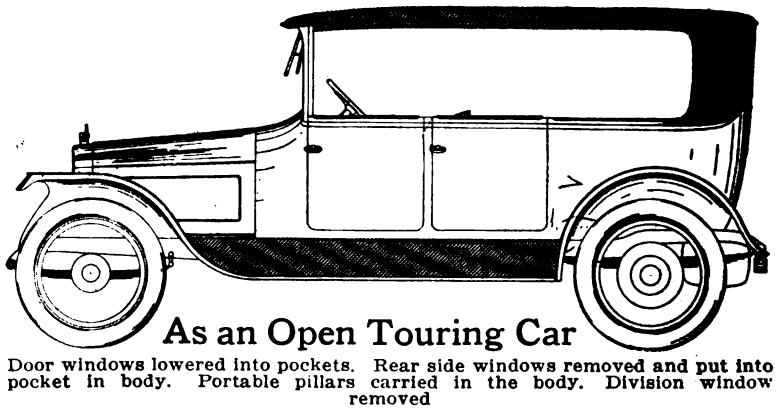
Write for illustrated catalogue

Goodman Auto Body Co., Inc.
1737 Broadway New York, N. Y.
Factory--211-215 West 19th Street



As a Berline or Limousine

Door windows adjustable to any height by regulators. Rear side windows can be lowered half way. Removable division window.



As an Open Touring Car

Door windows lowered into pockets. Rear side windows removed and put into pocket in body. Portable pillars carried in the body. Division window removed

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ELCAR

The Elcar at $845
Does Its Own Talking

Looks better than its price, and is just as good as it looks. A car of distinctive beauty, well designed, well built, well finished—a car in which quality speaks right out.

Three Models at One Price

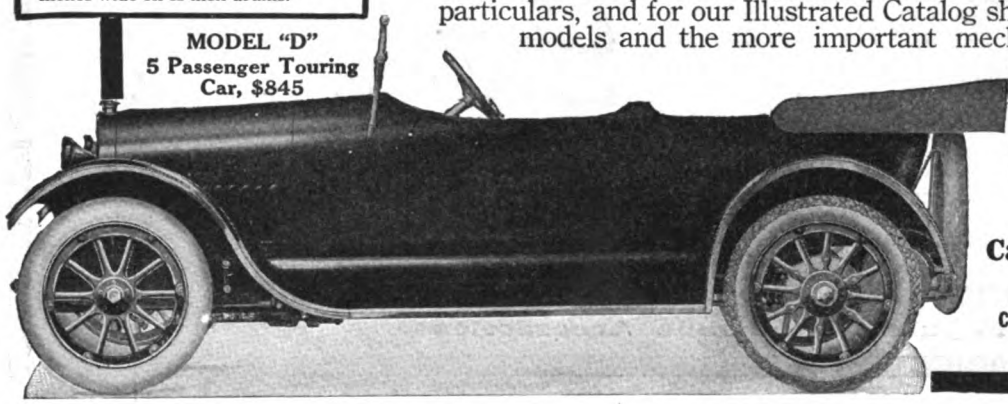
Five Passenger Touring Car **Four Passenger Touring-Roadster**
Two Passenger Roadster

A Few Elcar Specifications

Wheel Base—As long as some cars selling up to $3,000 and more—115 in.
Motor—4-cylinder; long stroke; high speed; 34.7 h. p. at 1,800 r. p. m.
Fuel Supply—Stewart vacuum system.
Ignition—Delco automatic spark advance with manual control.
Starting and Lighting—Dyneto two-unit; double-bulb headlights; Willard storage battery.
Clutch—Dry multiple disk—seven plates, steel on Raybestos.
Rear Axle—Full-floating with roller bearings at each end of wheel hubs.
Differential—Spiral bevel driving gears, with roller main bearings and ball thrust bearings.
Brakes—Internal and external, two inches wide on 12-inch drums.

Secure it for your territory We want to place our proposition before live dealers in territory not already assigned. Write us for particulars, and for our Illustrated Catalog showing all ELCAR models and the more important mechanical parts, and describing the construction of the ELCAR even down to its small details.

MODEL "D"
5 Passenger Touring Car, $845



Elkhart Carriage & Motor Car Company
C 779 Beardsley Avenue
Elkhart, Indiana

ENGINE TROUBLE
is mostly traceable to faulty lubrication

Autocrat MOTOR OIL

We absolutely guarantee Autocrat Motor Oil to be the best and most economical motor lubricant made.

If you are not satisfied that this is so, after using it, we cheerfully refund your money.

Made by special process from Premium Pennsylvania Crude, it has the highest fire test and lowest carbon content, and it is entirely free from sulphuric acid and caustic soda.

DEALERS: Here is the finest chance you ever had to make friends. We absolutely MEAN this guarantee.

BAYERSON OIL WORKS, Erie, Pa.

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THIS SELLS BUMPERS

"The display stand certainly sells bumpers," writes an Ohio dealer. "I put it up in front, near the door, and in the five weeks I have had it there I have sold twice as many bumpers as in any five weeks before."

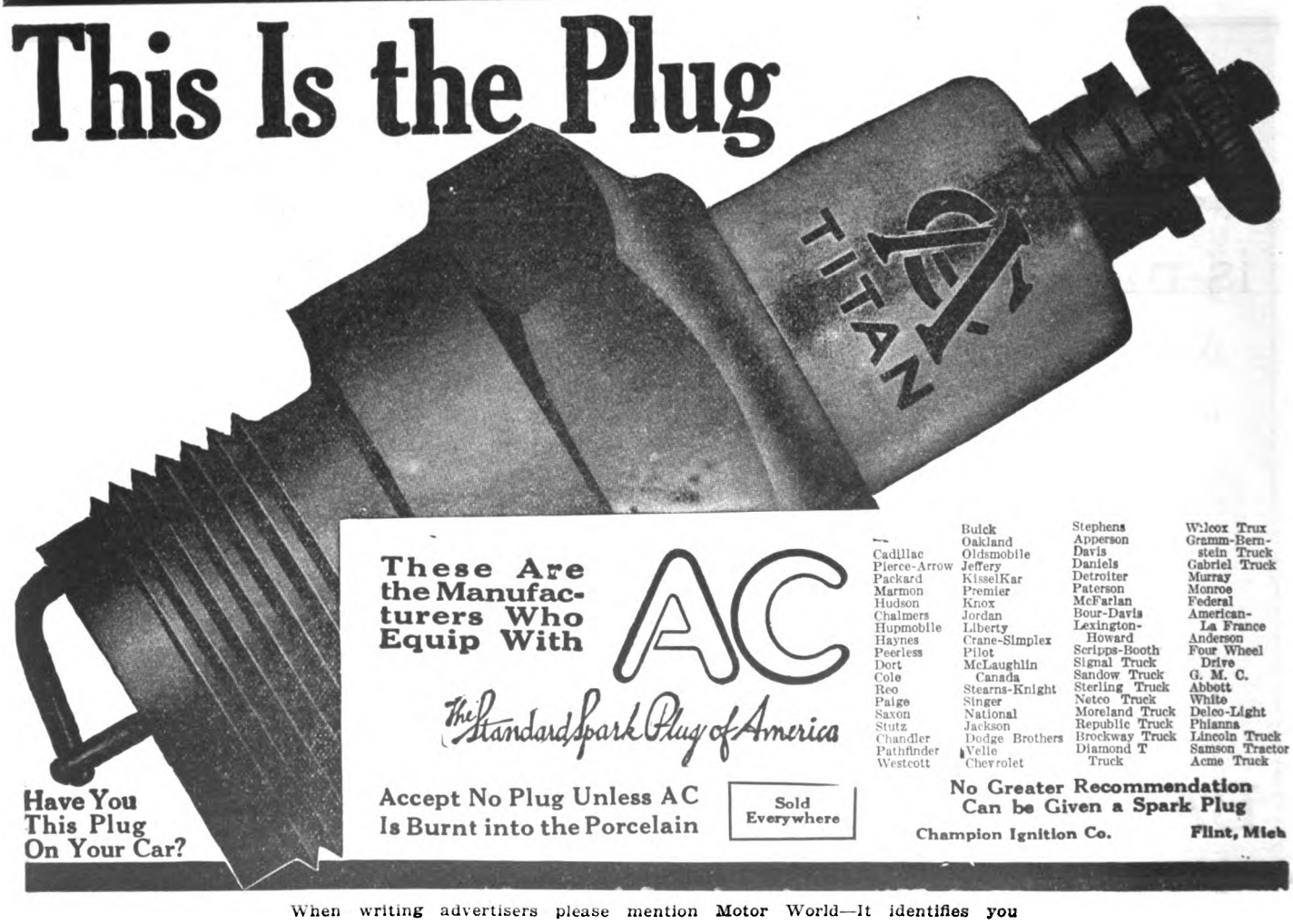
Gemco MILWAUKEE TRADE MARK

End Thrust Bumpers will almost sell themselves if they are displayed. Every car owner knows that it's cheaper to invest a few dollars in bumpers for the front and rear of his car than to buy a pair of new lamps and a fender or two when the inevitable smash comes. Gemco End Thrust Bumpers pay a good profit and bring car owners into the store to buy other supplies and accessories. Made to fit all cars, diamond or channel bars. Ask your jobber to quote you prices or terms or write to

Gemco Manufacturing Co. 756 So. Pierce Street Milwaukee, Wis.

Popular Automobile Accessories

This Is the Plug



Have You This Plug On Your Car?

These Are the Manufacturers Who Equip With AC

The Standard Spark Plug of America

Cadillac	Buick	Stephens	Wilcox Trux
Pierce-Arrow	Oakland	Apperson	Gramm-Bernstein Truck
Packard	Oldsmobile	Davis	Gabriel Truck
Marmon	Jeffery	Daniels	Murray
Hudson	KisselKar	Detroiter	Monroe
Chalmers	Premier	Paterson	Federal
Hupmobile	Knox	McFarlan	American-La France
Haynes	Jordan	Bour-Davis	Anderson
Peerless	Liberty	Lexington-Howard	Four Wheel Drive
Dort	Crane-Simplex	Scripps-Booth	G. M. C.
Cole	Pilot	Signal Truck	Abbott
Reo	McLaughlin Canada	Sandow Truck	White
Paige	Stearns-Knight	Sterling Truck	Deleo-Light
Saxon	Singer	Netco Truck	Phianna
Stutz	National	Moreland Truck	Lincoln Truck
Chandler	Jackson	Republic Truck	Samson Tractor
Pathfinder	Dodge Brothers	Brockway Truck	Acme Truck
Westcott	Velie	Diamond T Truck	
	Chevrolet		

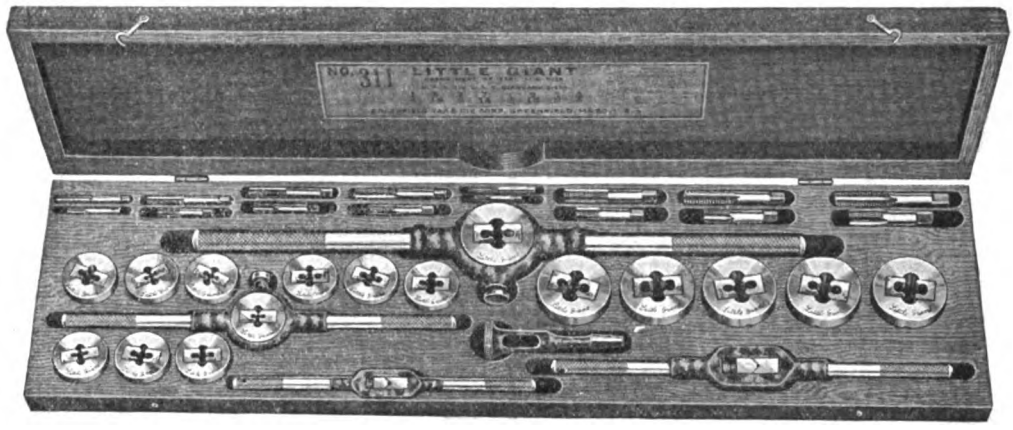
Accept No Plug Unless AC Is Burnt into the Porcelain

Sold Everywhere

No Greater Recommendation Can be Given a Spark Plug

Champion Ignition Co. Flint, Mich

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Every Automobile Garage & Repairshop Should Be Equipped With "LITTLE GIANT" Combination Screw Plates

Furnished both in United States and S. A. E. Standards. Each die is contained in its own collet and adjusted to size. There is also a Bit Brace Die Holder for cleaning up battered threads in out-of-the-way places. Every need of the manufacturers, the garage and repair man, or the car owner who makes his own repairs, for taps and dies, can be supplied from our big line.

Write today for the No. 37 Catalog

GREENFIELD TAP & DIE CORPORATION
Greenfield, Massachusetts

NEW YORK: 28 Warren St. CHICAGO: 13 S. Clinton CANADIAN FACTORY: Wells Brothers Co., of Canada, Ltd., Galt, Ontario

LONG

AS CONSTANT AS NIAGARA

for

MOTOR CARS MOTOR TRUCKS AND TRACTORS



Long Cooling Systems perform a greater service—and give greater assurance of perfect radiation than you can reasonably expect of the common radiator. Each Long Cooling System for each motor is designed to order. Each step in creating the design is taken in co-operation with the Engineering Departments of our factory and those of the manufacturer. Proper design insures proper construction. **By reason of this co-operation, we attain minimum cost and maximum efficiency.**

LONG MFG. CO.
DETROIT, MICH.

Pioneer Makers of Gasoline Engine Cooling Systems

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ATTENTION DEALERS

Here is a money-maker for agents, garagemen, dealers in accessories. It's a sure business-getter because it means satisfied customers.

The automobile owner whose car is equipped with

KEYSTONE
SHOCK ABSORBERS

never has broken springs; knows what real road comfort is. Happy in the knowledge that wear-and-tear and upkeep cost are held to a minimum.

Made in five sizes to suit every type of car, from the lightest roadster to the heaviest bus, ambulance or hearse.

KEYSTONE SHOCK ABSORBERS are a "good buy" for any car owner for they mean good-by to racking vibration that ruins the car and the disposition of the owner.



Hanger bolt, cross plate and lugs are drop forgings — not the ordinary castings. Keystone shock absorbers are the stoutest manufactured — they are unbreakable.

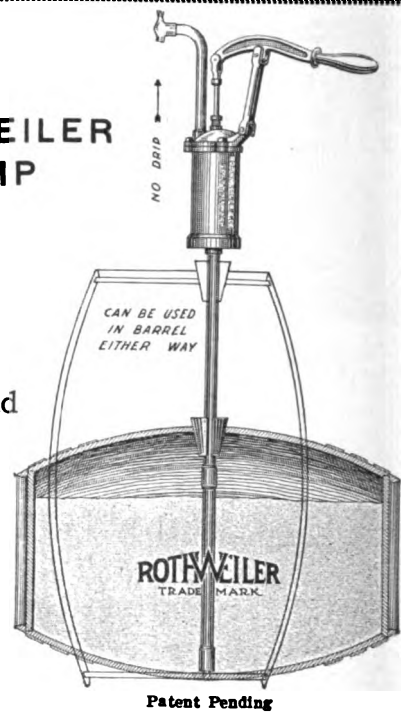
Finished in black enamel and nickel plated.

Dealers write us promptly.

Steel City Electric Co.
1207 Columbus Ave.
Pittsburgh, Pa.

ROTHWEILER PUMP

Price
$6.50
Delivery Charges Paid



Patent Pending

The above method is the easiest, quickest, cleanest and cheapest way of getting all the oil, gasolene, turpentine, light paint, etc., out of a wooden barrel or iron drum.

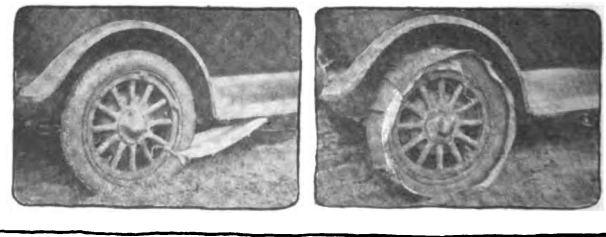
ROTHWEILER & CO., SEATTLE, WN.

Haberstick's "WON'T LET YOU STICK"
makes its own Road-Puts Itself On

When you are in mud, sand, snow, ice, wet grass, etc. If, instead of heating up your engine and your tires and your temper—instead of spoiling your clothes and splattering up your car—and finally paying a team of horses $5 to pull you out, if you can go to your tool box and take out the "Won't Let You Stick"; slip the metal container into the cleats under your running board; tie the end ropes around the rim; start your engine—unwrapping a dry canvas road with heavy rope insertions at regular intervals—and see your wheels take hold and your car come out like a shot—you're lucky. It costs you only $6. Dealers write. Or postpaid on receipt of price.

Let Your Engine Do the Work
— No Jack Necessary —

AUTO ACCESSORIES COMPANY
WHEELING W.VA.



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"Dependable Delivery"

is built into every Bethlehem Motor Truck that rolls out of the big plant at Allentown. Perfect balance and absolute standardization give the perfect Bethlehem result in each Bethlehem Motor Truck. "Bethlehem" means the maximum pulling power and the maximum selling power in motor trucks.

CAPACITY—2,500 and 4,500 Lbs.

MOTOR—Four cylinder, truck designed. 1¼ L-head cast en bloc, 2¼ ton L-head cast in pairs. Unusually large with three main bearings. Constant level oiling system. Thermo-Syphon cooling system. Cylinders—1¼ ton, 3¾ inches x 4¼ inches—2¼ ton, 4 x 4½ inches.

IGNITION—Bosch high-tension magneto.

RADIATOR—Special design — large cooling surfaces.

CLUTCH—Dry disc.

TRANSMISSION — Selective sliding gear—3 speeds forward and 1 reverse. Gears heat treated, nickel steel, case-hardened, centre control.

GOVERNOR — Pierce Governor — the ideal truck type.

DRIVE—Through two universal joints and tubular shaft.

FRONT AXLE—I-Beam, drop-forged nickel steel, heat-treated spindles. Roller bearings throughout.

REAR AXLE — Internal-gear type, nickel steel gears throughout. In 1¼ ton, load carried on 2 1/16 inch and in 2¼ ton on 3 inch nickel steel, solid rear axle, double heat-treated, spindles exceptionally large.

BRAKES—Double acting external contracting surface and internal expanding emergency—on rear wheels.

FRONT SPRINGS — 38¼ long, 2½ inches wide, single shackled in rear—semi-elliptic.

REAR SPRINGS—51¾ inches long, 2½ inches wide, in 1¼ ton and 3 inches wide in 2¼ ton—semi-elliptic.

WHEELS—Artillery type—14 spokes front and rear.

TIRES—Standard. On 1¼ ton front, 34 x 3; rear, 34 x 4. On 2¼ ton, front, 34 x 4; rear, 34 x 6, pressed-on type.

FRAME—34 inches wide rear with in-sweep to 30½ inches front. 1¼ ton 182 11/16 inches long and 5 inches deep at centre with top and bottom flanges 3 11/16 inches wide. 2¼ ton 208 inches long and 5½ inches deep at centre with top and bottom flanges 3 11/16 inches wide. Pressed steel channel section. Distance back of driver's seat in 1¼ ton, 98 inches. In 2¼ ton, 121 inches.

WHEEL BASE—1¼ ton 126 inches, 56 inch tread front and rear. 2¼ ton 144 inches, 56 inch tread front, 61 inch tread rear.

FINISH—Lead or standard color—chassis emerald green; hood, fenders, cowl and seat, black—doors, emerald green.

STANDARD BODIES — On 1¼ ton truck only—flare board painted black, 9 feet 6 inches long, 46 inches wide, 16 inches high—flare boards 4 inches—all inside dimensions. Stake body, painted black, 9 feet 6 inches long, 5 feet wide, sides 2 feet 6 inches high—clear inside dimensions.

GASOLINE CAPACITY — 16 gallons gravity feed.

CHASSIS EQUIPMENT — Oil lamps, side and rear, mechanical horn, complete tool kit, tool box and jack.

There will be between five and ten thousand Bethlehem Motor Trucks manufactured during the next twelve months and they will dominate your territory. The big national advertising campaign starts in April.

Are you to be the "Bethlehem" dealer?

Bethlehem Motors Corporation
Allentown, Pa.

1¼ Ton
$1,125
Chassis Only

1¼ Ton
$1,165
Complete with body and top over driving seat.

2¼ Ton
$1,665
Chassis Only

F. O. B. Allentown!



BETHLEHEM MOTOR TRUCKS

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THE SIOUX WAY

—is the New Way to Grind or Reface Valves and Valve Seats

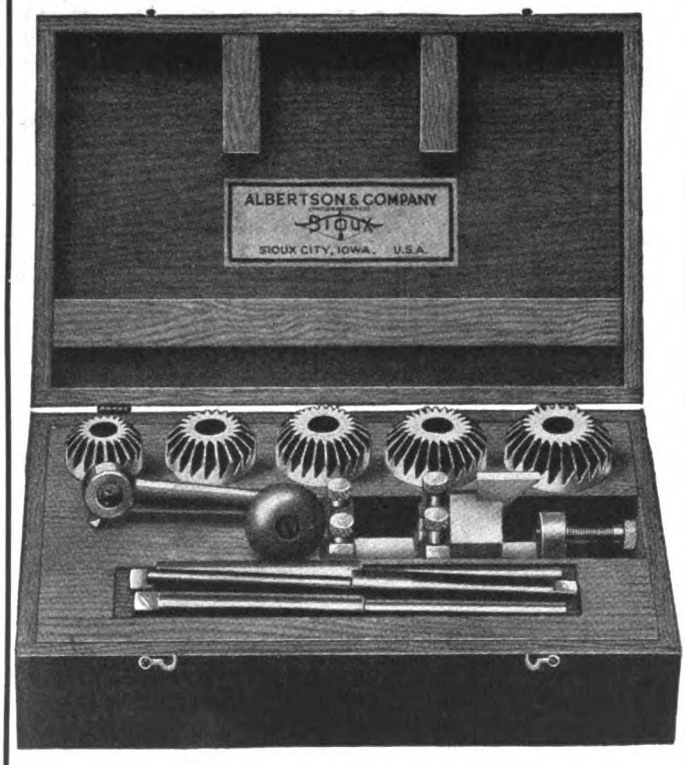
THE modern Sioux method is much easier, quicker and more profitable than the old way.

You can reface a valve or valve seat in about *one-twentieth* the time—and be sure of having it done right. The valve face will be even, smooth, at an accurate angle and perfectly centered. All this we *guarantee.*

It's all so simple that you don't have to put an expert mechanic on the job. There is no chance of shattering valve or spoiling valve seat with a "Sioux" tool.

Your customers will be so pleased with the work and the small price for which you can do it, that you will soon find yourself with a steady, paying business in this line. The price of a "Sioux" Valve Tool Set is so small that two jobs will pay for the outfit. You can get this full set, or the "Sioux" Refacing Tool or any of the other individual items from any live jobber.

Write for illustrated circular containing full description.



Pat. Febr. 17, 1914 Other patents pending

Sold by all live jobbers Made only by

Albertson & Co.

Sioux City Iowa

Mr. Car Owner:

Keep your car looking new, by using

Be-Be-Co Shine Up Specialties

Be-Be-Co TRADE MARK

Mohair Top Dressing.	Brass Polish.
Leather Top Dressing.	Nickel Polish.
Top Lining Dye.	Body Polish.
Seat & Slip Cover Cleaner.	Motor Car Soap.
Cushion Dressing.	Tire Paint.
Metal and Body Finish.	Hand Cleaner.

BOSTON BLACKING COMPANY

Est. 1890 *(Specialty Dept.)* **Inc. 1900**

East Cambridge, Mass. (Home Office and Factory)

Branch Factories:
Chelsea, Mass.; Montreal, Canada; England, Germany, France, Austria, Sweden, Italy, Australia.

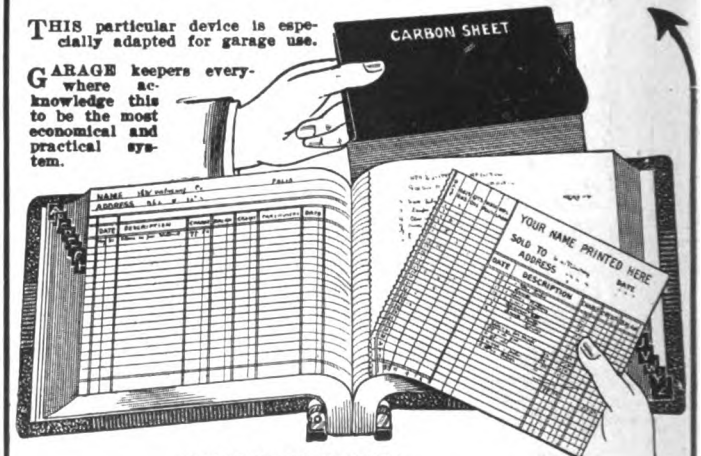
Branch offices and warerooms in all large cities.

SAVE TIME AND MONEY

Our SPECIAL GARAGE Bookkeeping Plan Gives You the HIGHEST Possible EFFICIENCY

THIS particular device is especially adapted for garage use.

GARAGE keepers everywhere acknowledge this to be the most economical and practical system.



A FEW REASONS WHY

1—When you enter an account a bill for the customer is made at the same time.
2—Simplified method for recording and posting all items.
3—Avoids the necessity of posting each item.
4—Requires the minimum amount of labor.

THIS PAGE IS THE CUSTOMER'S BILL
THE ONE UNDERNEATH IS YOUR COPY

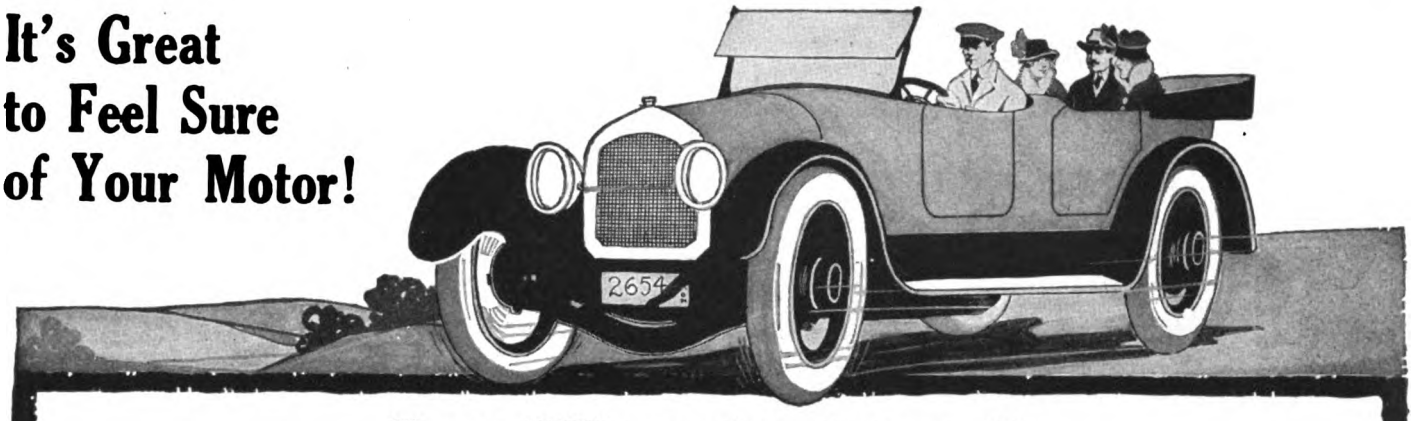
SEND FOR DESCRIPTIVE FOLDER AND FULL PARTICULARS

THOMAS J. HARTON & CO., Inc., 212a Church St. NEW YORK

Loose Leaf Specialists

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It's Great to Feel Sure of Your Motor!



When you KNOW every explosion will give you ALL its power—that's when motoring is solid satisfaction. The

EISEMANN MAGNETO

makes complete combustion certain. It drives its intense, penetrating spark through the densest compression. Mixture rich or lean, motor racing or barely turning over, you'll be sure of full power if your car is Eisemann equipped!



THE EISEMANN MAGNETO COMPANY
Sales and General Offices, 32-33d St., Brooklyn, N. Y.
Detroit, Mich. 802 Woodward Ave.

LPHCO

Special Bumpers
for
Cadillac, Cole, Chevrolet, Franklin, Ford, Packard, Pathfinder, Saxon "6", Briscoe, Dodge and Others.

Special Rear Bumpers
for
Simplex, Buick, Cadillac, Mitchell, Overland, Saxon

Send for Complete Information

Because we have made a particular and exhaustive study of the front and rear bumper requirements of every important make of car the name of

HALLADAY

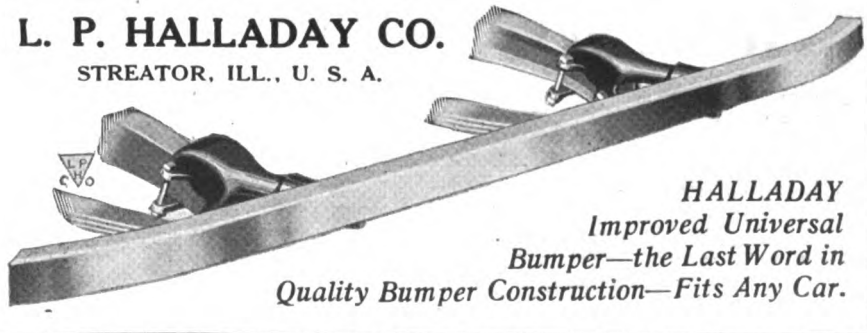
Is the QUALITY Mark of a Bumper

Car owners who know most about bumpers invariably choose HALLADAY for good and sufficient reasons. Jobbers and Dealers who appreciate the advantages of handling a standard line—famous throughout the trade—sell HALLADAYS.

HALLADAY Bumpers are to be had from most good dealers and supply stores. Ask to see the latest models.

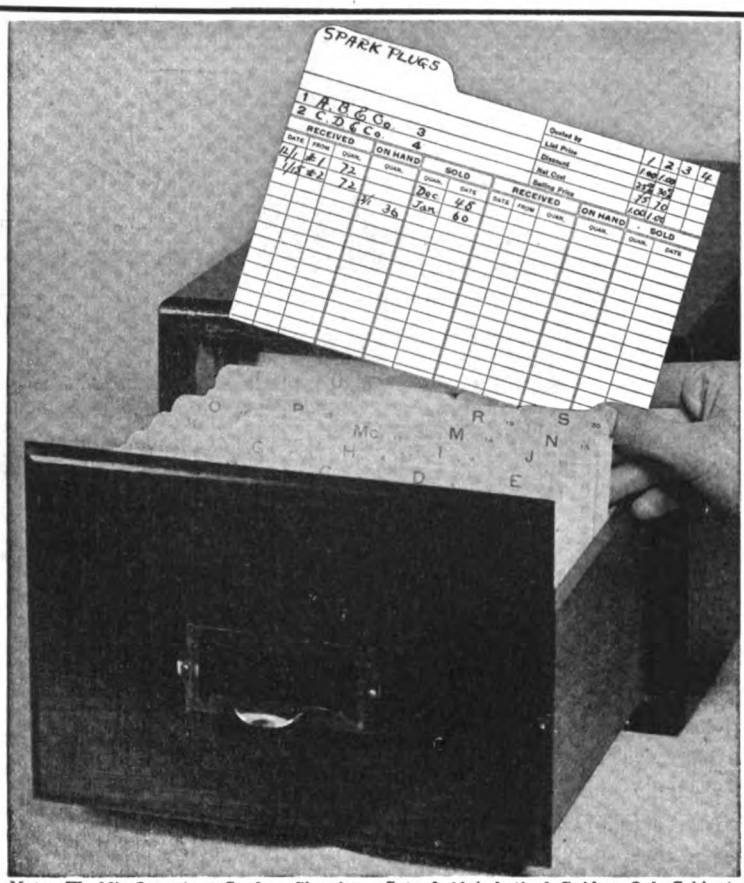
BEAR IN MIND there is a HALLADAY Bumper for every car

L. P. HALLADAY CO.
STREATOR, ILL., U. S. A.



HALLADAY Improved Universal Bumper—the Last Word in Quality Bumper Construction—Fits Any Car.

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Exclusive Authorized Manufacturers of Motor World's Card Systems.
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Located just off Times Square

The Hotel Woodstock

is within a handy walk of everything—terminals—subways—elevateds—surface lines—theatres and the automobile district, yet you can have quiet, refinement and service withal.

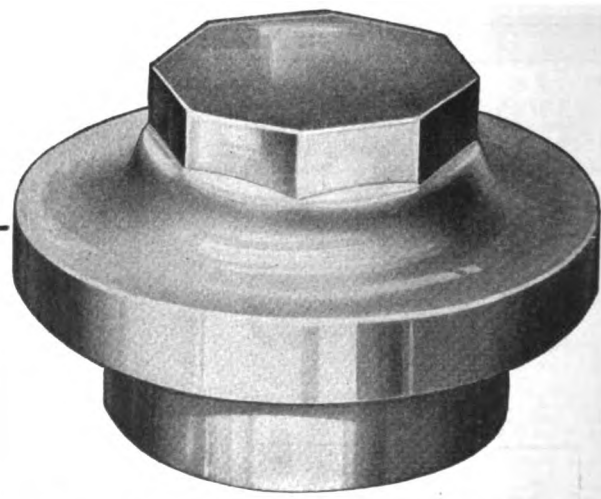
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Service and accomodations unsurpassed for completeness and efficiency

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Cast Brass Hub Caps

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FORD CARS

Nickelplated or Polished Brass

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These Are the Manufacturers Who Equip With

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The Standard Spark Plug of America

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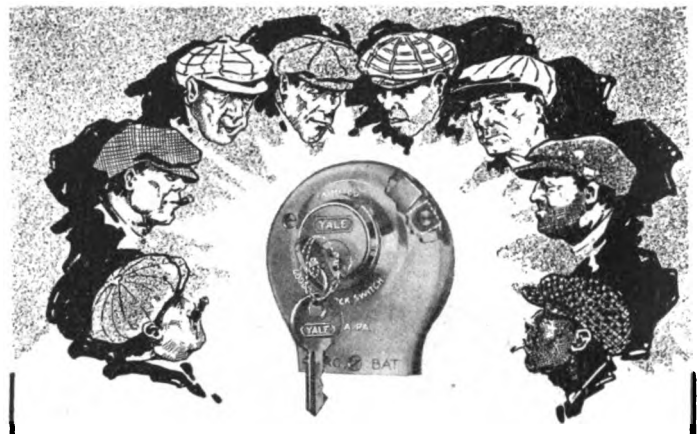
No Greater Recommendation Can Be Given a Spark Plug

Champion Ignition Co. Flint, Mich.

Have You This Plug On Your Car?

Sold Everywhere

Accept No Plug Unless A C is Burnt Into the Porcelain



This Stops the Ford Thief

Theft insurance *doesn't* stop Ford thieves—but the Goodrich Yale Lock and Switch *does*.

Theft insurance *doesn't* prevent joy-riders from racking your car to pieces and then abandoning it—but the Goodrich Yale Lock and Switch *does*.

Theft insurance *doesn't* keep your business appointments and your social engagements—but the Goodrich Yale Lock and Switch *does*.

Because

—it is the only positive protection against highway pirates and joyriding crooks.

—it is unlockable, unscrewable and unpickable.

—the Yale lock key cannot be duplicated—yours is the master key and there's no other like it.

—one turn of that key locks the ignition and covers up the screw heads all in one motion.

—the thief's tools are rendered useless—the lock cannot be removed.

—metal shutters sliding over the screws which hold the Goodrich Yale Lock and Switch in place are the *Nemesis of the Ford thief*.

—only the owner of the key can remove this lock—anyone can install it in two minutes.

Unprotected Fords encourage thefts.

All the Mayor's men and all the cops' horses cannot do the work of this lock—it is the only safe and sane way to protect your car.

All fear and thought of theft is cast to the four winds when your Ford is equipped with a Goodrich Yale Lock and Switch, internationally *advertised*, internationally *demanded*, *sold the world over*

$3.25 Price Complete

$4.50 in Canada

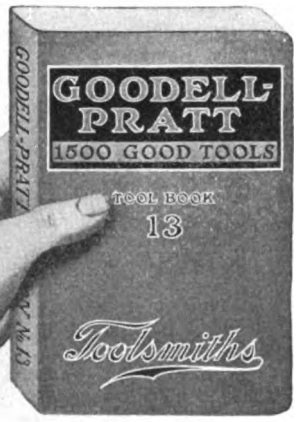
DEALERS: The many provable advantages of the Goodrich Yale Lock and Switch make it the fastest and most profitable seller in the Ford accessory field. Write or wire today for terms.

Goodrich-Lenhart Mfg. Co.

1118 Widener Building ::: Philadelphia

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This Book

shows over 1500 Good Tools for all trades. Every garage, every repair shop and every accessory dealer should have one.

It will be issued late in March; write for your copy now.

GOODELL-PRATT COMPANY
Toolsmiths
GREENFIELD
MASS., U.S.A.

STANDARDIZATION



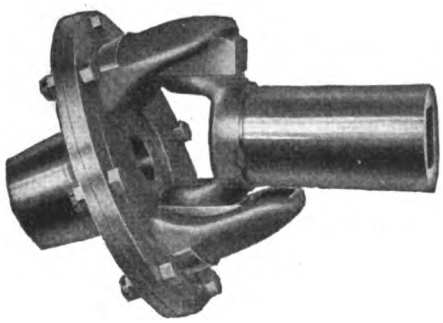
is the only thing that makes quantity production possible. One of the first problems that bothered the S.A.E. was screw threads.

"MORSE" TAPS

conform exactly to the standards set. In addition they are thread cutters from the start.

CATALOG?

Morse Twist Drill & Mch. Co.
New Bedford **Mass.**



"EVANS"
UNIVERSAL JOINTS
Pat. Pending.

Simply constructed with a minimum number of parts, this joint works smoothly and easily within a dust-proof housing which holds grease to lubricate the working parts. The "Evans" Universal Joint consists essentially of two hardened trunnion blocks of large area running in spherical slots and acting also as a bushing for the right angle hinge motion.

Made in four sizes up to 100 H. P.

Booklet and further information upon request.

"M. & E." Grease Cups "Hele-Shaw" Clutches

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New York
Baltimore
Atlanta
Cleveland

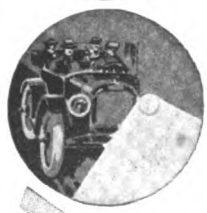
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Chicago
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$4 BUYS THIS COMPLETE FORD HEADLIGHT CONTROL SYSTEM







$4 will now equip your Ford with a headlight control system that is as complete as any on high-priced cars and even more convenient—

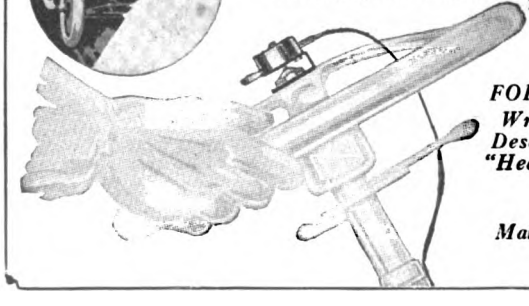
The kind of light you **need**—DIM for city driving—NORMAL for ordinary use, or—INTENSE for picking your way along strange, rough roads at low speed, is INSTANTLY available **the instant you FLIP THE CONTROL SWITCH of the**

VAN SICKLEN
COMBINATION
HEADLIGHT DIMMER AND INTENSIFIER
FOR FORD CARS

Thousands of Ford Owners and Drivers want and need this Device. Order and install yours NOW!

Price $4 at your Dealer's or Shipped Prepaid with Complete Instructions, upon receipt of the price.

THE VAN SICKLEN COMPANY
Makers of the Van Sicklen Speedmeter
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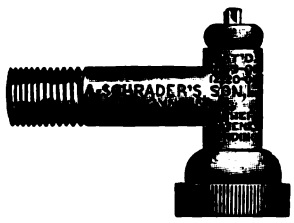


FORD OWNERS
Write Today for Descriptive Booklet "Headlight Control"

Mailed FREE on Request

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Tire Pumping And Air Testing Made Easy.



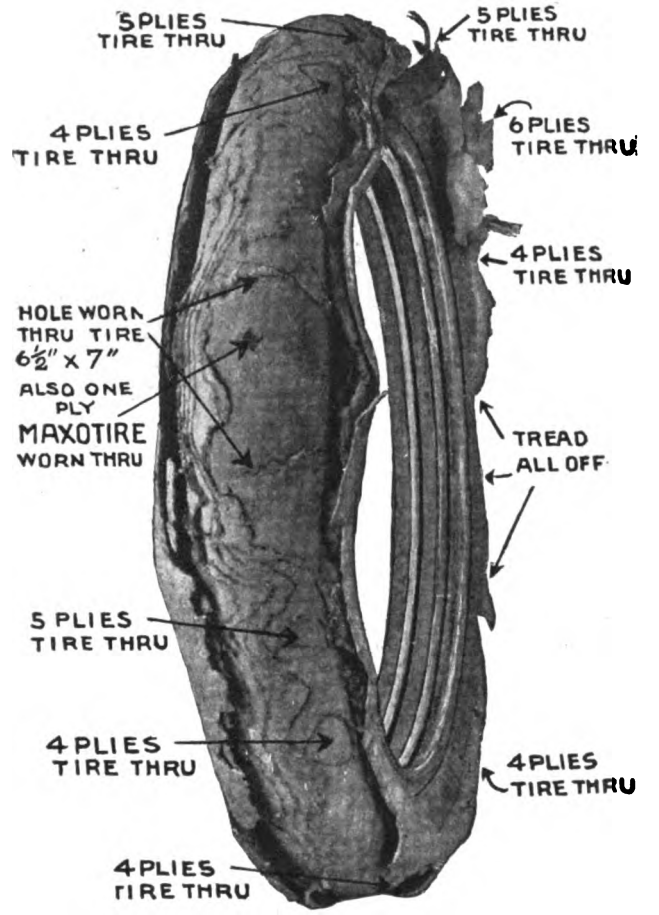
MOST of your customers know that it is death to tires to run them insufficiently inflated. A great many of them however, neglect to test their air pressure because this operation until now has been tedious and time consuming.

You will be doing them a favor if you will bring to their attention the fact that with a **SCHRADER UNIVERSAL PUMP CONNECTION** this hitherto complicated operation has become both easy and agreeable.

The **SCHRADER UNIVERSAL PUMP CONNECTION** retails in the U. S. A. for thirty-five cents and you should have no difficulty whatever in selling as many of them as you have customers. It will also help you to sell gauges to those of your customers who until now have been deterred from testing their air pressure by thought of the labor and loss of time involved.

A. SCHRADER'S SON, INC.

783-803 Atlantic Ave. Brooklyn, N. Y.



Can Your Customers Ride On Tires Like This

They can not—at least not on the unprotected casings they buy at ever-rising price, and use with a single inner tube. But—

MAXOTIRE

Users Can—and Do And Dealers Make Good Profits

—because MAXOTIRES re-enforce the outer casings, and they sell fast because they add tremendously to tire life. Casings used with MAXOTIRES run until they fall to pieces. The photograph tells the story.

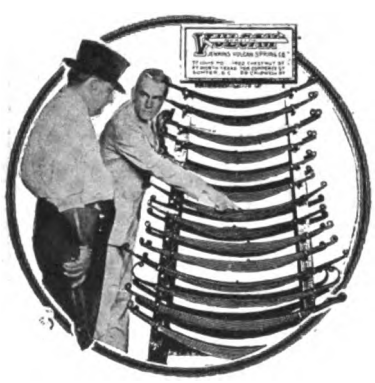
Bigger profits are in MAXOTIRE than new tire sales. Not sold through jobbers or cut rate supply houses. Only through our own dealers in exclusive territory.

Dealers get the business our national advertising creates. Write for free catalog and complete agency details.

K. & W. RUBBER COMPANY

3d STREET ASHLAND, OHIO

You Need Not Keep A Customer Waiting



When he comes in for a new spring you have it for him right on the rack.

If by any chance you should not have it on the rack you can wire us and get it at once. We have constantly on hand springs to fit 90% of all American cars.

But if he is one of your regular customers you will have it right on the rack, for we give you the rack free and fit it out with springs most likely to be called for by your regular trade.

VULCAN QUALITY

This is part of our DEALER CO-OPERATION plan. Write for particulars. They will interest you.

JENKINS VULCAN SPRING CO.

1402 Chestnut St., St. Louis, Mo.

708 Commerce St., Fort Worth, Tex.

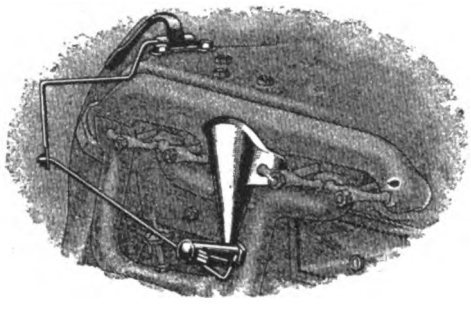
29 Caldwell St., Sumter, S. C.

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The Foot Air Accelerator

Made Especially for Fords—Regulates Combustion

Price only **$6**



A new, big seller that by injecting hot air into the Intake Manifold **guarantees** more speed, more power, less carbon, a cooler motor, flexibility and ease in driving, an air brake and an increase of 75 to 100% in mileage from fuel.

Dealers wanted—Exclusive territory for distributors

WRITE

Foot Air Accelerator Co.

Union Central Bldg. Cincinnati, Ohio

SHELDON

MAKERS OF SPRINGS & AXLES FOR OVER FIFTY YEARS

Everybody needs

Natural Vision

Watch for announcement soon

The EDGERTON MOTOR TESTER

Positively Eliminates the Uncertainties of Guesswork in Locating Motor Troubles

It is a Tool that Sells on Sight because it

- Locates instantly missing explosions
- Weak cylinders
- Knocking bearings
- Leaking valves or pistons
- Faulty valve or ignition timing
- Makes carburetor adjustments easier
- Diagnoses the exact working condition of each cylinder separately
- Shows if motor is adjusted properly for running conditions
- Burns carbon off the exhaust valve seats in a few minutes.
- It is the greatest time and labor saving device of its kind

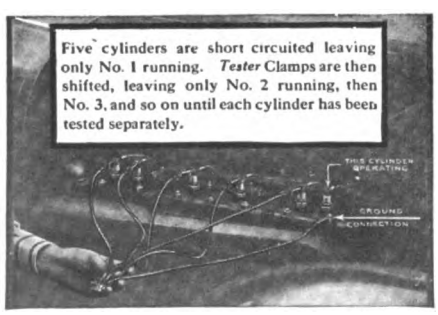
Made in two models for any number of cylinders; the twelve cylinder can be used for any motor of twelve cylinders or less and the same is true of the other sizes.

Everyone from the car owner to the expert factory adjuster needs it and should get it.

Write for Literature or Order Today.

R. G. EDGERTON & CO.

SUFFOLK, VIRGINIA



Patents Pending

PRICES

Special

4 cyl...	$2.00
6 cyl...	2.50
8 cyl...	3.25
12 cyl...	4.75

De Luxe

4 or 6 cyl...	$5.00
8 cyl...	6.75
12 cyl...	9.50

Specify number of cylinders and model desired when ordering. Both models give same results, but the De Luxe is made heavier and will stand more abuse.

The Original Double Arm SHOCK ABSORBER

W & C For FORD CARS

YOU GET THE SAME MOTION

in Fords and Heavy Cars

With the Same Spring Suspension

The easiest riding big cars on the road are usually equipped with *cantilever springs.*

The easiest riding Fords are equipped with W & C, the original double arm shock absorber, the accepted adaptation of *cantilever springs for Fords.*

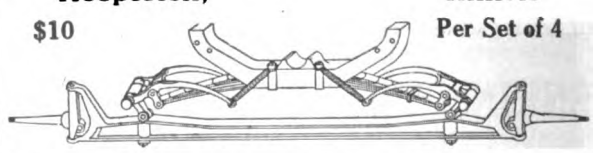
The only shock absorber that gives you greater riding comfort than you anticipate.

Ask Your Dealer

PHILIP H. WEBBER & CO.

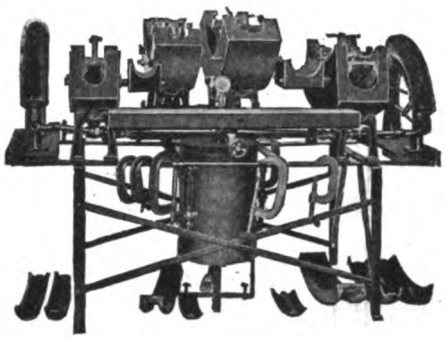
Hoopeston, Illinois

$10 Per Set of 4



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Vulcanizing With a Vanderpool Vulcanizer Brings Big Profits



3 Cavity Combination Vanderpool Vulcanizer

Here is an exceptional opportunity for Garages as well as Vulcanizing Companies to secure a vulcanizer that will turn out high-grade work at a small cost. The fuel saved alone, will pay for the machine in a short time—then you will "cash in" on your investment. This plant, the Vanderpool Vulcanizer, is meeting with enthusiastic approval of hundreds of satisfied users all over the country. Unsolicited testimonials from the various companies now using the "Vanderpool" testify to the dependability, efficiency and economy of this "Vulcanizing Wonder." One man writes that the first month's profits paid for the plant. No experience needed—we teach you how. It occupies very little floor space, and "once bought, you will never have to buy again."

Send in this ad with your name and we will mail catalogue and prices.

VANDERPOOL COMPANY
Box 82 Springfield, Ohio

Economy of Current Consumption Positive Unfailing Action—

—are the two points of superiority most obvious in the PITTSFIELD DISTRIBUTOR

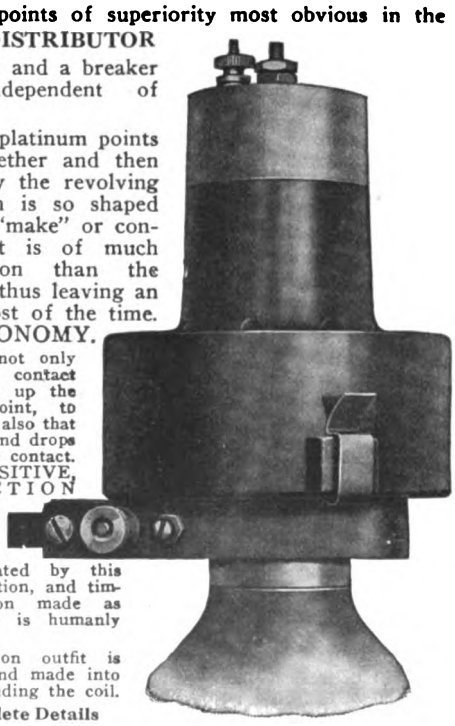
An open circuit and a breaker mechanism independent of springs.

The two small platinum points are forced together and then forced apart by the revolving cam. The cam is so shaped that while the "make" or contact is firm it is of much shorter duration than the "break" action, thus leaving an open circuit most of the time. This means ECONOMY.

The cam action not only drops the lower contact point, but pushes up the upper contact point, to break the contact; also that it lifts the lower and drops the upper to make contact. This means POSITIVE, UNFAILING ACTION —MECHANICAL ACTION.

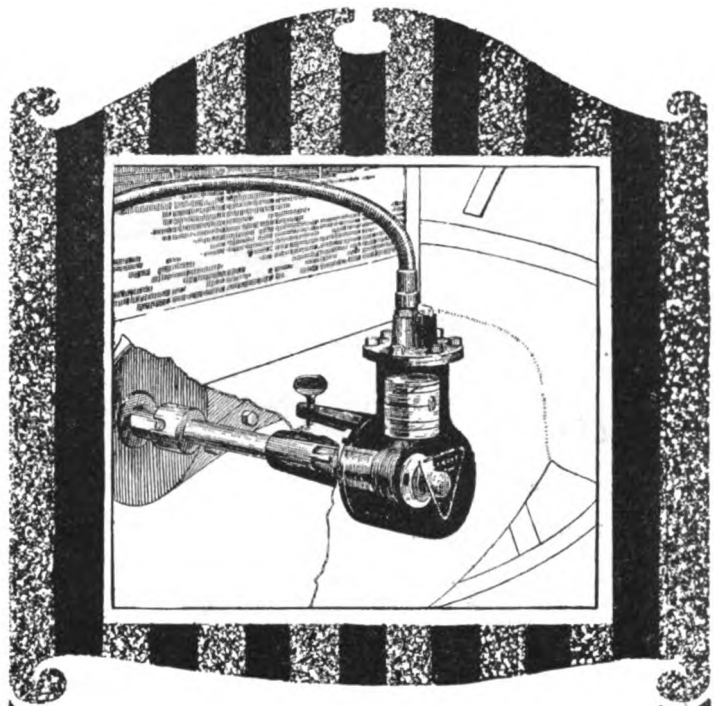
Electrical and mechanical lags are practically eliminated by this simple, positive action, and timing synchronization made as nearly perfect as is humanly attainable.

The whole ignition outfit is simple, compact, and made into a single unit, including the coil.



Write for Complete Details

PITTSFIELD SPARK COIL COMPANY
PITTSFIELD MASSACHUSETTS



DETROIT GEARLESS CRANK-SHAFT TIRE PUMP

Pat. Aug. 25, 1915

Finds Its Customers Among Owners of 960,000 Cars Between $800 and $1,300

—and consequently continues to give complete and satisfactory service as long as users demand.
Sells fast at a popular price—

On and Off in a Jiffy Without Tools or Adjustments of Any Kind

The simplest, easiest power tire pump to attach and operate. Fits on at the end of the motor crank shaft, in 30 seconds or less. The DETROIT Gearless Tire Pump is—

Not a Rubber Diaphragm Device

—the tremendous majority of them in a class that can and will afford $10 for a motor driven tire pump.
Thousands of these owners are going to buy DETROIT Gearless Crank-Shaft Tire Pumps during the Spring and Summer—because the DETROIT Gearless fits every one of their cars, some of which are specially designed by factory engineers to accommodate it.

$10 Complete

—with discounts for dealers that pay. NOW READY for Briscoe, Dodge, Chandler, Hudson, Overland, Reo, Stearns, Saxon 1916 and Studebaker cars.

Write for details today

DETROIT ACCESSORIES CORP'N.
520 Hillger Avenue Detroit, Mich.

CANADIAN DISTRIBUTORS
Walkerville Hardware Co. Walkerville, Ont.

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TORIT 6300



If You Repair Automobiles

investigate the TORIT torch

Efficient and Reliable

A TORIT Welder will prove a Money Maker and a Business Getter

Ask for Catalog "M"

Manufactured by

The Evleth-Lindsay Co.

St. Paul, Minn.

Any Nut on Any Demountable Rim Fits the Grip of the UTILITY Universal Rim Wrench

A complete socket wrench set in itself. Used like a bit and brace. Holds like a vise. Folds and carries in the tool box. Price only $1.50. *A quick seller with liberal discounts for dealers.*



Price Only $1 50

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HILL PUMP VALVE COMPANY

Archer Ave. and Canal St., Chicago

Mfrs. of Famous UTILITY Protected Heaters for all Motor Cars

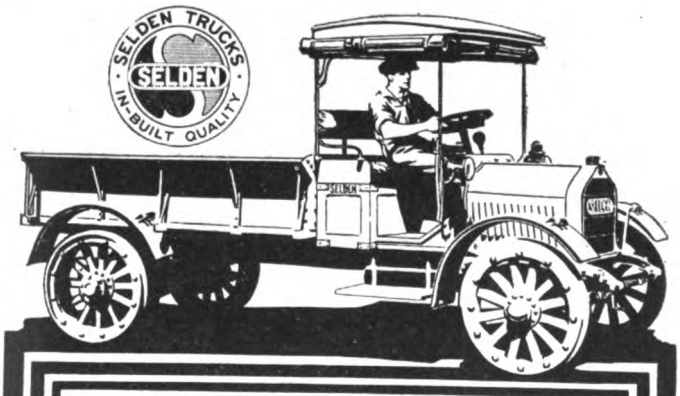
American Axles

First in the Field, *First* in Improvements, *First* in quality of Materials, and *First* in Preference on the Best Cars.

Licensed under The Kardo Company Patents

THE AMERICAN BALL-BEARING CO.

Pioneer Axle Builders of America CLEVELAND, OHIO



FOR bigger, better construction—greater strength—greater hauling power—greater speed—and longer, profitable service—choose

Selden Trucks

They keep on reducing haulage costs when others give out.

DEALERS:

The Selden "In-built Quality" Line will build a reputation for you—a permanent truck business. Get our New Sales Proposition QUICK!

Selden Truck Sales Co.

Rochester, N. Y., U. S. A.

PATENTED

DUBOIS POWER RINGS TRADE MARK

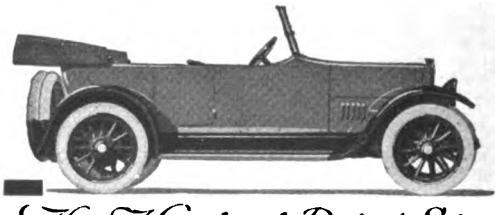
Put More Power In Your Engine!

No pins in the DuBois Power Ring. Gas cannot get by—neither will it carbonize.

DuBois Piston Ring Co., Inc.
Dept. R,
Albany, N. Y., U. S. A.

The DuBois Power Piston Ring will take the trouble "kick" out and put the power "kick" in.

Write or wire for representation in your territory.



The Hundred Point Six

We have good territory open where the continuous 12-months demand for Kissel's ALL-YEAR Car and HUNDRED POINT SIX insures a 365-day selling program.

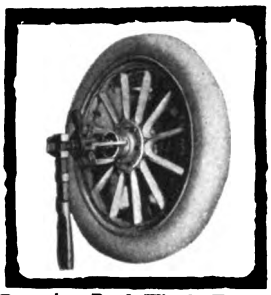
Write or wire us today for details.

Standard Open Touring, $1295 to $1385. ALL-YEAR Models, $1735 to $2050.

KISSEL MOTOR CAR CO.
Hartford, Wis., U. S. A.

KISSELKAR EVERY INCH A CAR

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Removing Road Wheel, Using 8 Short Jaws.

A PRODUCT OF NECESSITY

invented by a practical garageman to fit exactly the greatest number of uses to which any garage tool is put. An absolute necessity in a busy, up-to-date garage. Strong and well made. Never out of order.

GARAGEMEN

find a thousand uses for this tool. 1300 are now in use in New York and New England. Absolutely guaranteed to give satisfaction or money back.



COLLISON'S UNIVERSAL PULLER

(Patented)

Built on principle of Universal Chuck, has range of 1 1/16" to 15" diameter. Can be used either with 2 or 3 jaws. Three sets of jaws furnished with each puller.



Straightening Sprung Axle.

MANY USES

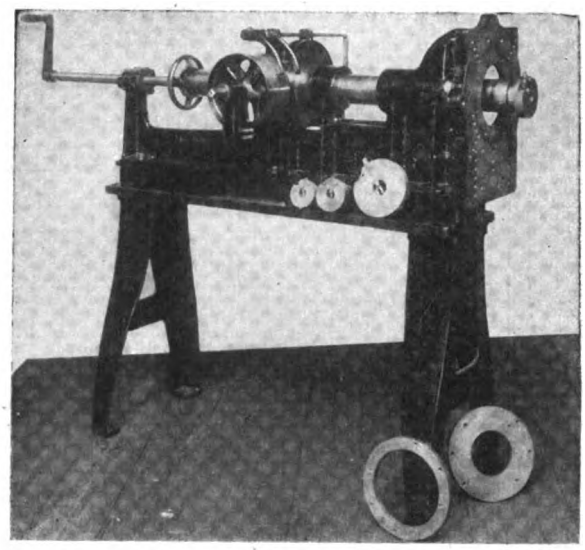
are found for this remarkable tool, among them the removal of wheels, jack-shaft gear, cardan joint, magneto gear and coupling, wrist pins; the straightening of frames, spring axles, steering spindles; assembling clutch, removal or replacement of clutch bushings—and any number of other things.

PRICE Complete $20

25 Per Cent. Discount to Dealers & Garages

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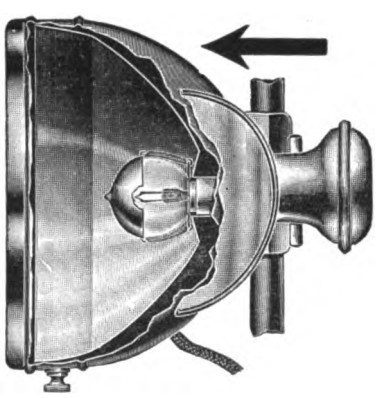
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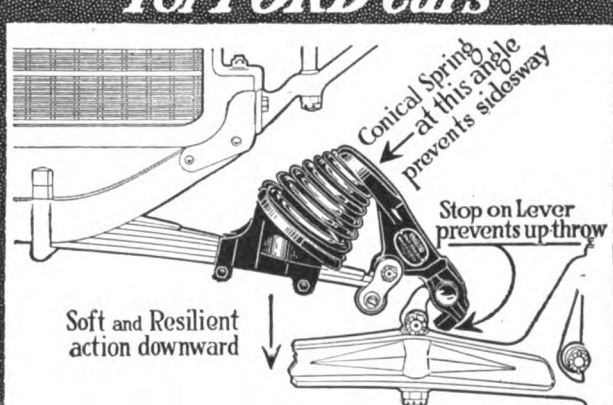


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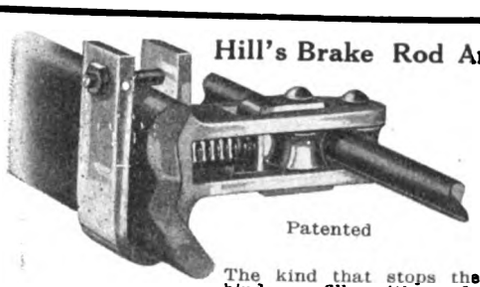
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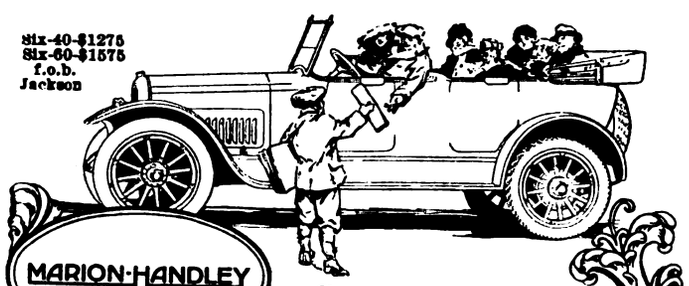
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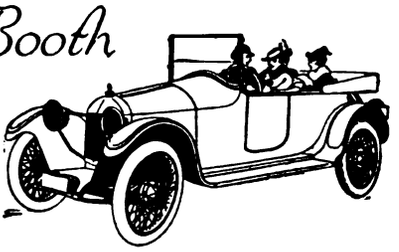
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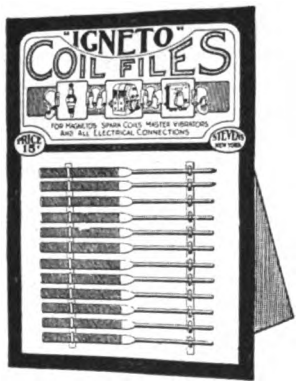
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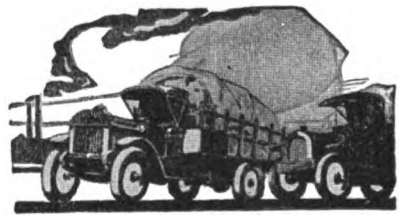
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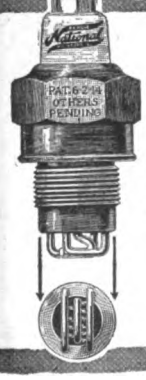
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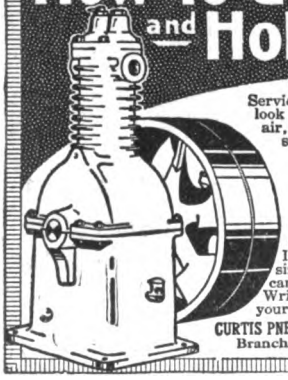
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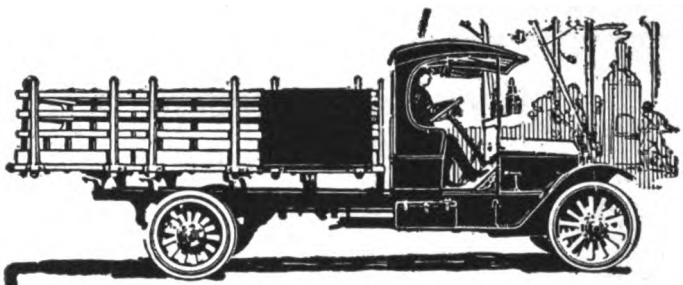
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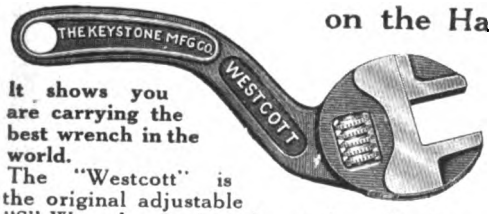
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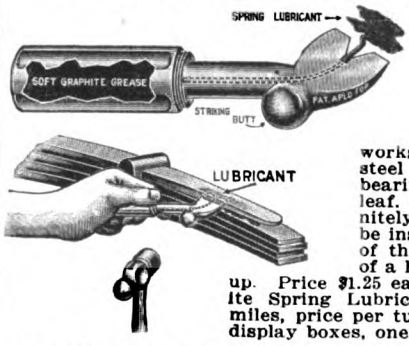
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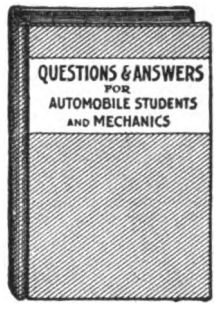
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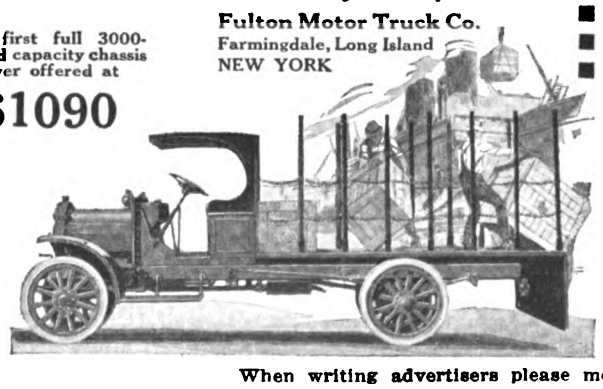
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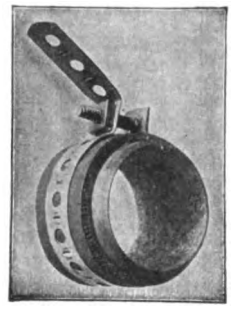
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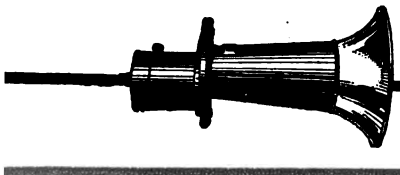
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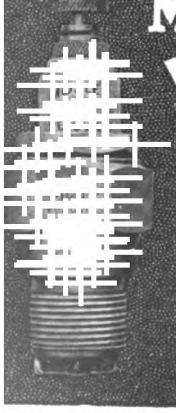
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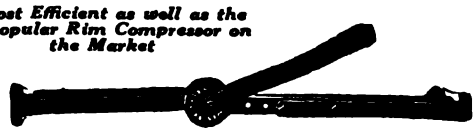
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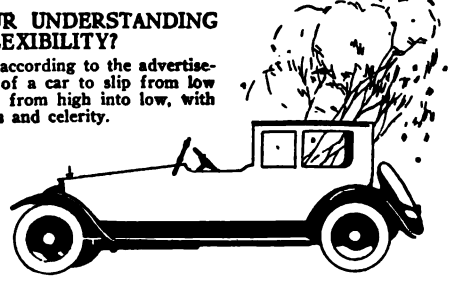
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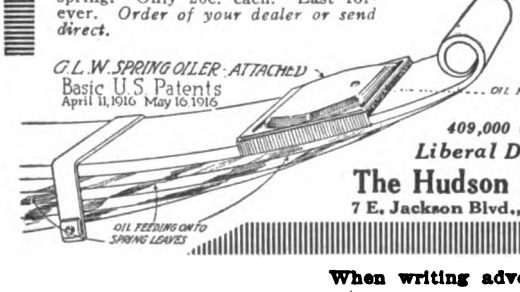
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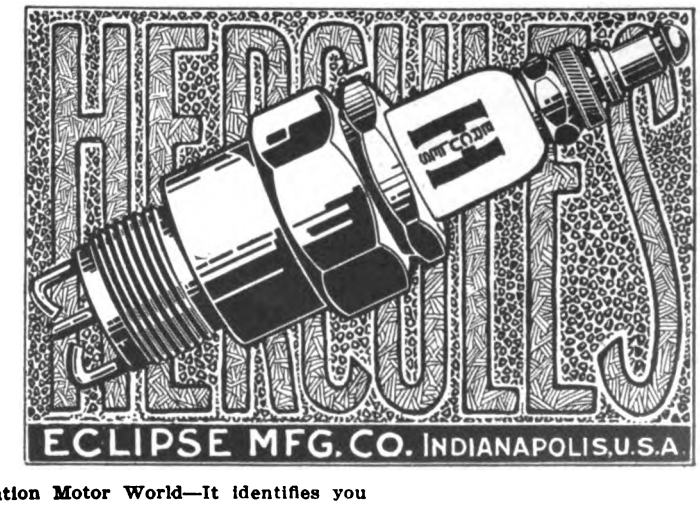
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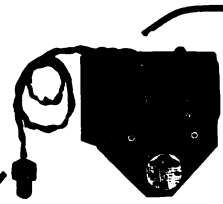
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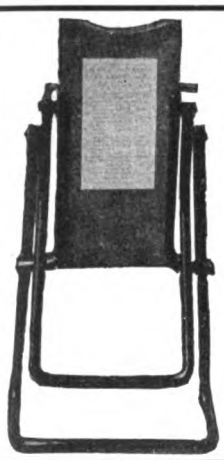
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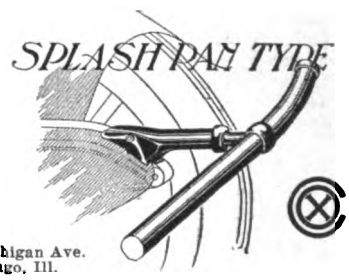
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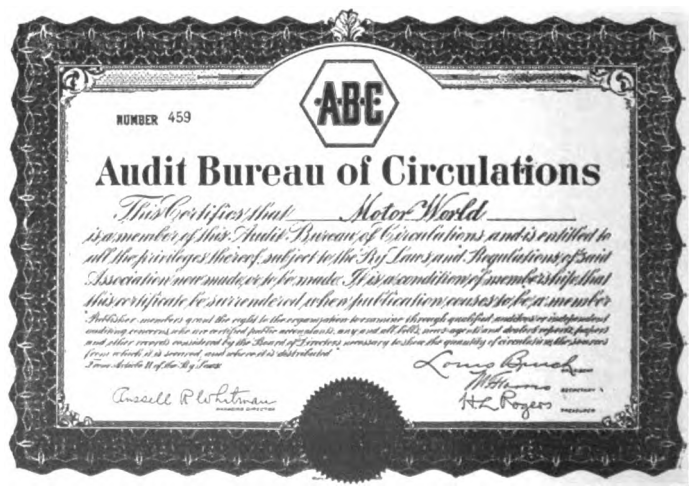
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36 by 4	14.00	3.45	7.50	1.75
37 by 4	18.25	3.75	8.70	1.80
34 by 4½	16.00	3.85	7.90	1.75
35 by 4½	16.50	3.90	7.90	1.80
36 by 4½	16.80	4.00	8.00	1.85
37 by 4½	17.25	4.15	9.25	1.90
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206	2.50	308	4.75
207	2.90	309	5.70
208	3.00	310	6.25
209	3.50	311	7.20
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(CONES) No.	Net	(CONES) No.	Net
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258	2.00	3354	3.20
259	2.00	3150	2.75
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316	2.30	3750	3.50
317	2.30	4350	4.25
318	2.30	4363	4.25
319	2.30	4360	4.25
336	2.60	5350	5.25
337	2.60		
341	2.60	(CUPS)	
358	2.80	312	$1.00
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Repaired with our Perfected Scientific
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34 x 3½	9.60	10.45	2.35
31 x 4	11.45	12.60	2.95
32 x 4	11.95	12.95	3.05
33 x 4	12.45	13.50	3.10
34 x 4	12.95	13.95	3.20
35 x 4	13.45	14.95	3.80
36 x 4	13.95	15.50	3.25
34 x 4½	16.95	18.95	4.00
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30x3½	8.50	2.25	36x4	14.50	3.50
31x3½	9.00	2.50	34x4½	16.75	4.00
32x3½	9.50	2.50	35x4½	17.50	4.15
34x3½	10.00	2.55	36x4½	18.00	4.25
36x3½	11.25	2.75	37x4½	18.50	4.36
31x4	12.25	2.90	35x5	18.00	5.00
32x4	13.00	3.20	36x5	19.00	5.00
33x4	13.25	3.25	37x5	20.50	5.20

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Special Bargains in Slightly Used Tires.

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30x3½	4.75	1.45	36x4	8.00	1.75
31x3½	5.00	1.50	34x4½	8.50	1.75
32x3½	5.75	1.50	35x4½	8.75	1.80
34x3½	6.00	1.60	36x4½	10.00	1.85
31x4	6.75	1.65	37x4½	9.00	1.90
32x4	7.50	1.60	35x5	10.00	2.00
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34x4	8.25	1.70	37x5		2.20

All goods shipped C. O. D. subject to examination, on receipt of 10 per cent of order.

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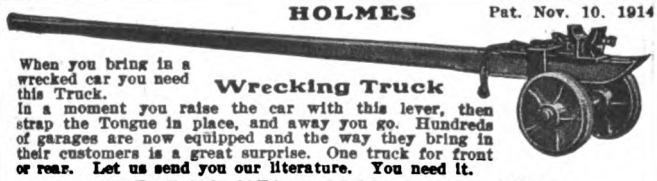
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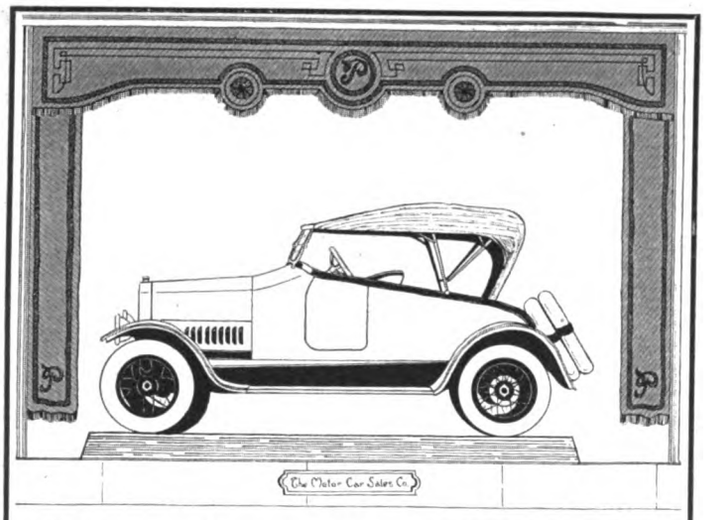


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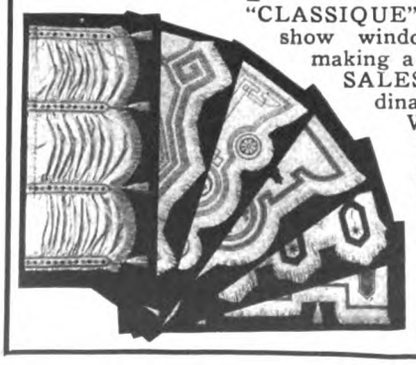
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Tire Adjustments —Guaranteed— FREE

If you are buying tires you want full value. If you are selling tires you want to give your customer full value. Tire adjustments can be made easy and also satisfactory to both parties if exact mileage records are available. Our Motorist Record make it possible to keep this record with least amount of trouble and the Records are free to Owners and also to Dealers and Garages for distribution to customers. All that is necessary, fill out coupon below and mail to-day; the offer will not be repeated in Motor World. The Record contains tables for all kinds of car records showing both efficiency and cost.

OWNER'S COUPON M. W

Enclosed find stamped addressed envelope for free copy Motorist Record.

Name .....
Address .....
Name of Car.....
Do you do own repairs?
Buy tools from.....

DEALERS' GARAGE COUPON M.W.

Please send free of all charges 50 Motorist Records which we will distribute to owners.

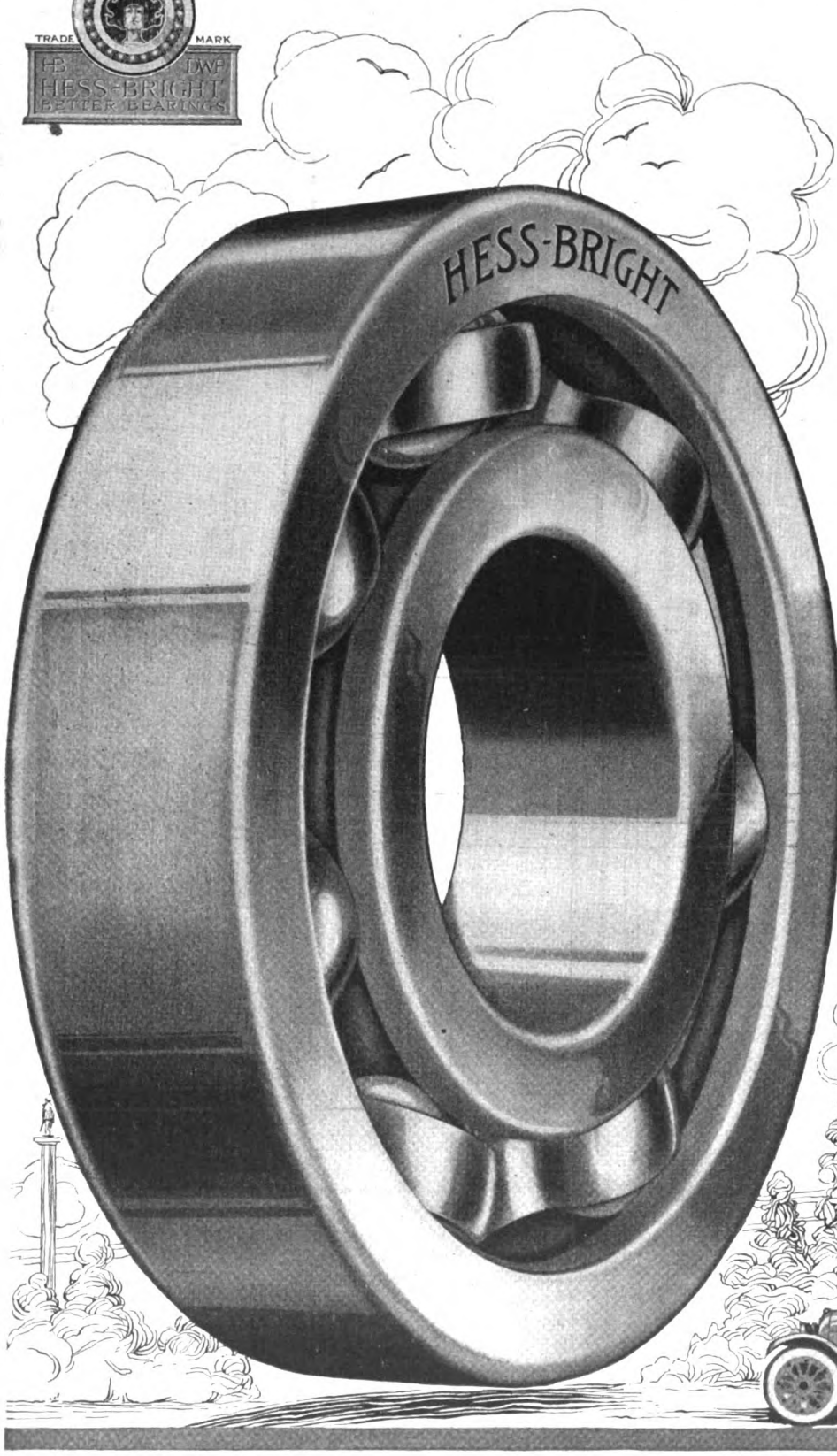
Name .....
Address .....
Do you stock tools for resale .....
Name of jobber.....

Mail to Walden-Worcester, Inc.
Worcester, Mass.

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HESS-BRIGHT'S CONRAD PATENTS ARE THOROUGHLY ADJUDICATED

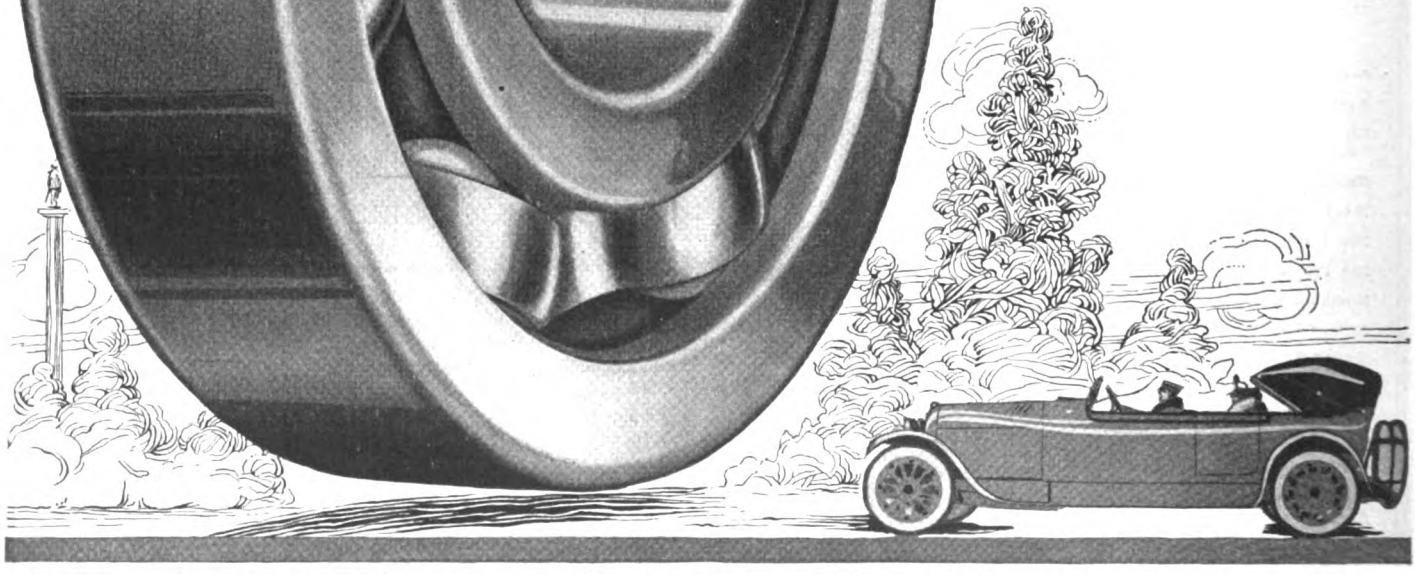
TRADE MARK
HB DWF
HESS-BRIGHT
BETTER BEARINGS



IF we could take you through the factory of the HESS-BRIGHT MFG. CO. and evidence to you the consideration that has been given to the comfort and health of the employees; if you could see the spirit of co-operation everywhere present; if you could "feel" the good fellowship that pervades the organization—then you would realize *why* HESS-BRIGHT BALL BEARINGS are *"Better Ball Bearings"—why* every bearing in its perfection is simply a reflection of the intentions of its makers.

THE HESS-BRIGHT MANUFACTURING CO.
PHILADELPHIA, PA.

Hess-Bright Distributors for Retail Trade in Every City of Importance



HESS-BRIGHT BALL BEARINGS

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In Every Overhauling Job Install

-the Genuine McQUAY-NORRIS LEAK-PROOF PISTON RINGS

Whatever the size or model the motor happens to be, you can get a set of Genuine McQuay-Norris LEAK-PROOF Piston Rings of *exact* dimensions—*at once.*

Note that—*exact; at once.*

Over 250 Jobbers stretching from coast to coast carry complete service stocks. Back of them is our factory stock which comprises over 2000 different sizes of rings; over-sizes in both widths and diameters as well as standard sizes, all ready for prompt shipment.

The Genuine LEAK-PROOF Piston Rings are made only by the McQuay-Norris Manufacturing Co., St. Louis--the inventors. Known only by the makers' name. Constructed in only one way. Packed only in this special carton, under this copyrighted label; each ring separately enclosed in this sealed parchment container.

That is your protection against substitution. Accept no others.

Send for Free Booklet

"To Have and to Hold Power"—the standard handbook on gas engine compression. It shows how power depends on piston rings and why McQuay-Norris LEAK-PROOF Rings are more efficient than any others. Write Dept. K.

Manufactured by

McQuay-Norris Manufacturing Co., St. Louis, U. S. A.

BRANCH OFFICES:

New York, Chicago, Philadelphia, Pittsburg, San Francisco, Los Angeles, Cincinnati, Seattle, Kansas City, St. Paul, Atlanta, Denver, Dallas

Canadian Factory

W. H. Banfield & Sons, Ltd., 372 Pape Ave., Toronto

50T



The genuine is packed this way for your protection

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$1150 F. o. b. Racine
Mitchell Junior—a 40-h. p. Six
120-inch Wheelbase

Mitchell SIXES

$1460 F. o. b. Racine
7-Passenger—48 Horsepower
127-inch Wheelbase

Now An $1150 Model

The Mitchell Junior—our smaller Six—opens up an entirely new field for the Mitchell.

To cover that field we are this year doubling the number of Mitchell dealers. And we are building 25,000 cars.

We have also increased our advertising from last year's $700,000 to $1,000,000 for this year.

These facts make the Mitchell line, more than ever before, a dominant factor in Motordom.

Other Advances

This year we start to build all Mitchell bodies, open and enclosed. Our new body plant covers 14 city blocks.

Now more of the Mitchell is built in one plant than of any other quality car.

Out of this new saving we add 24 per cent to the cost of our finish, upholstery and trimming. This makes the Mitchell the handsomest car, the daintiest car in its class.

Now, for the first time, we announce 100 per cent over-strength in every Mitchell part. We have spent three years in thus doubling our margins of safety.

And the Mitchell of this year embodies 31 extra features. That is, attractions which other cars omit. Things like a power tire pump, reversible headlights, a dashboard engine primer, a light in the tonneau, etc.

Never-Broken Springs

One result of this over-strength shows in Bate cantilever springs. In two years' use, on thousands of cars, not one of these springs has broken.

Another result shows in record endurance. Seven Mitchell cars have averaged over 175,000 miles apiece. The Mitchell of today is a lifetime car.

John W. Bate's Car

All the Mitchell advantages are due to John W. Bate, the efficiency engineer. This entire plant, covering 45 acres, was built and equipped by him. It is now the model plant of all Motordom.

TWO SIZES

Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase. A high-speed, economical, 48-horsepower motor. Disappearing extra seats and 31 extra features included.

Price $1460, f. o. b. Racine

Mitchell Junior—a 5-passenger Six on similar lines with 120-inch wheelbase. A 40-horsepower motor—¼-inch smaller bore than larger Mitchell.

Price $1150, f. o. b. Racine

Also all styles of enclosed and convertible bodies. Also demountable tops.

Nowhere else could a car like the Mitchell be built at anywhere near our cost.

That accounts for all the Mitchell extras. They are paid for by factory savings.

Mr. Bate has made the car itself a masterpiece of engineering. Over 440 parts are built of toughened steel. All parts which get a major strain are built of Chrome-Vanadium. Vital parts are oversize.

He has made it by far the smartest car in its class. And this without making it costly. The added luxury, like the added strength, is paid for by factory savings.

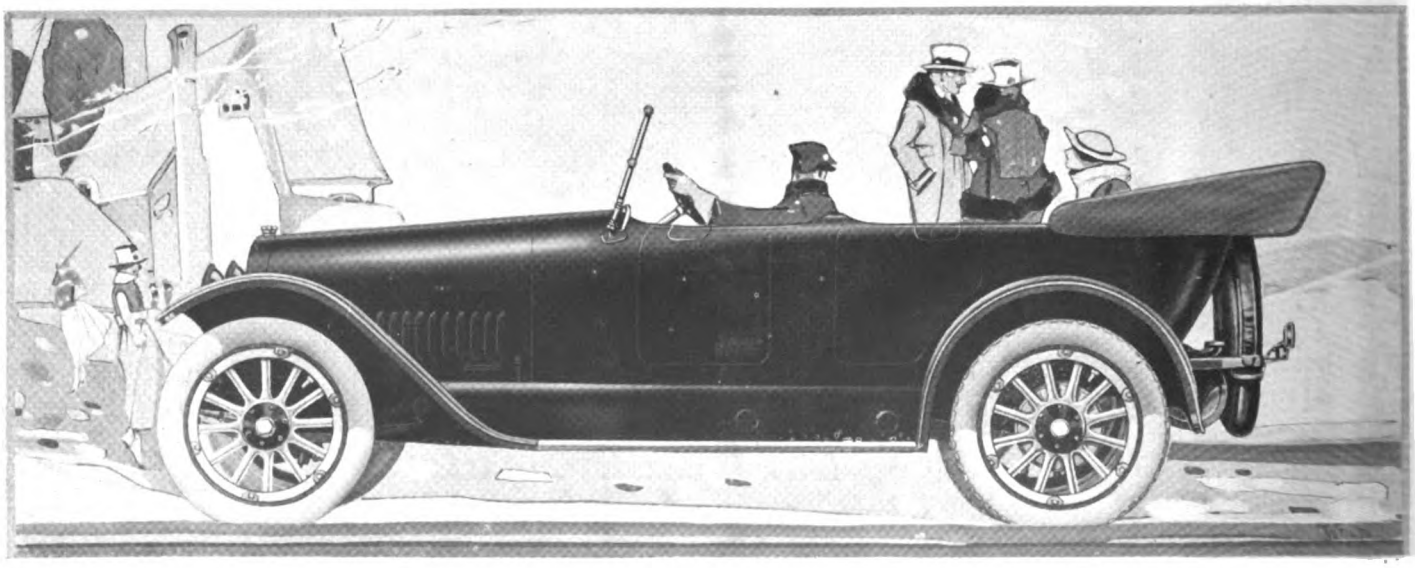
He has made it the best-equipped car on the market. No other car has more than four of what we call extra features.

The time has come when efficiency counts for much. It shows conspicuously in the extra values.

Probably no other class car will ever be able to compete with the Mitchell in this. John W. Bate has spent 14 years in attaining this Mitchell efficiency. He built and equipped this mammoth plant with that one end in view. For many years he has worked to attain it in every Mitchell part. He is working now—15 hours a day—to retain this leadership.

If you believe in efficiency—in the factory and the car—investigate this wonderful example.

MITCHELL MOTORS COMPANY, Inc.
Racine, Wis., U. S. A.



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—18 REASONS FOR SUCCESS—SEE PAGE 3

MOTOR WORLD

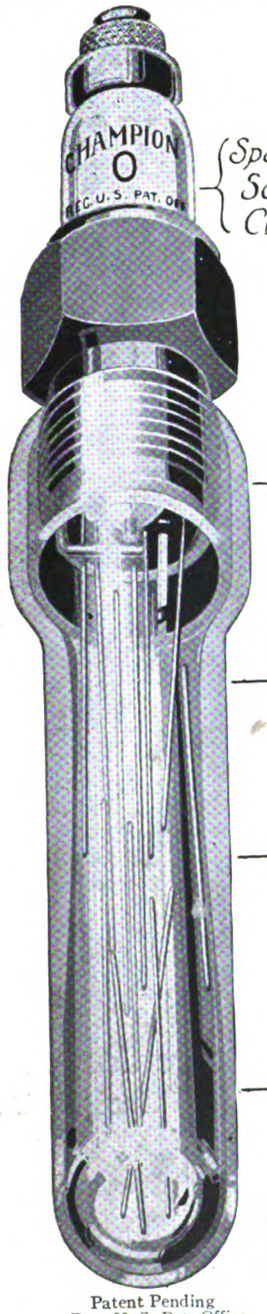
for

DEALERS, JOBBERS AND GARAGEMEN

Volume L
No. 12

New York, March 21. 1917

Ten cents a copy
Two dollars a year



Patent Pending
Reg. U. S. Pat. Office.

PRICE
75c

Clean Your Plugs In A Jiffy

It's no trick at all now to clean and renovate your spark plug.

The operation is so simple a child can do it.

The plug itself does not even have to be taken apart.

No dirt—no grease—no fussing and mussing with emery paper if you use the

CHAMPION

"MINUTE"

SPARK PLUG CLEANER

A whole set of plugs can be cleaned with a Champion "Minute" Cleaner in less time than it formerly took to get ready to do the task.

All you have to do is fill the tube half full of gasoline—screw the plug into the bushing at the end—and shake.

The gasoline dissolves the oil, and the needles in the tube pick the carbon clean from the porcelain. That's all there is to it.

Dealers are finding the Champion "Minute" Spark Plug Cleaner a real money maker. It's brand new and every motorist wants one. Better order your stock today.

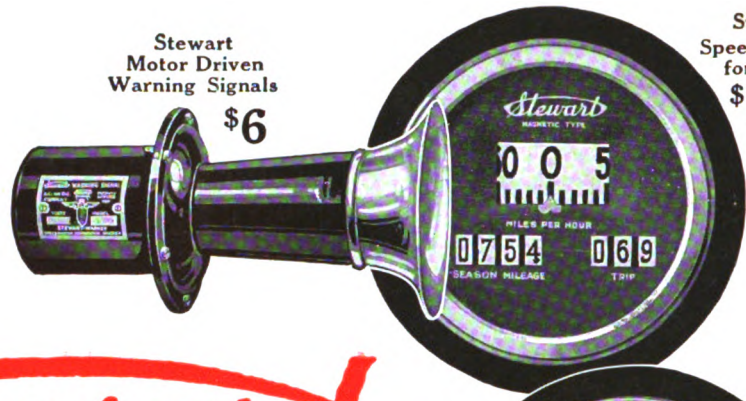
Champion Spark Plug Company
901 Upton Avenue Toledo, Ohio
Manufacturers of Champion Toledo Spark Plugs

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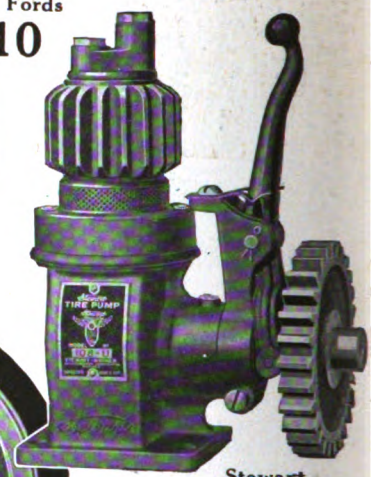
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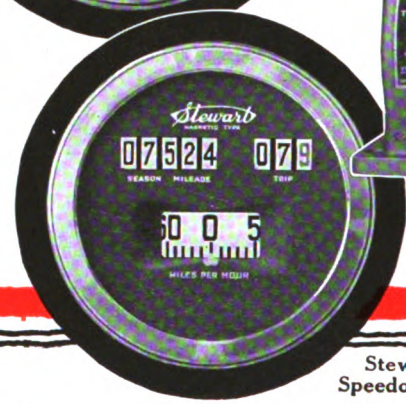
Stewart Motor Driven Warning Signals $6



Stewart Speedometer for Fords $10



Stewart Products



Stewart Tire Pump $12

Stewart Speedometer $25

Eliminate Sales Resistance

How much resistance do you have to overcome in selling an accessory?

How much doubt exists in the mind of the customer when you offer him an unknown, unadvertised device? How much time is required to make the sale?

It is easy to cut down the time required to make a sale so that one salesman may serve more customers, make sales faster—and earn more money for you. Take a tire pump for instance; There are all kinds of pumps. But, offer a customer a Stewart Tire Pump and undoubtedly you will find that he is already half sold on it; he probably knew all about the Stewart Tire Pump before he entered your store. Offer a customer a Stewart Product FIRST—in nearly every case you will make the sale.

This is but another example of the advantage of selling advertised goods. There is scarcely a motor-car owner who does not read Stewart Products advertising in the national publications.

Are you capitalizing this?

Are you taking advantage of the prospects that are being prepared for you?

Are you backing our advertising by carrying a complete stock of Stewart products? Your business sense tells you it pays to sell Stewart Products.

Let us tell you more about them.

Stewart Hand Operated Warning Signal $3.50



Stewart Vacuum System $10



Stewart PRODUCTS
PRESTIGE QUALITY SERVICE SATISFACTION
MADE IN U.S.A.

Warner Auto-Meter $50





Stewart Spark Plug $1

The Stewart-Warner Speedometer Corporation
Chicago, Illinois, U.S.A.

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Said Mrs. Ryder—

ACTUAL EXPERIENCE No. 2.

I Like the

Hartford

SHOCK ABSORBER





Makes Every Road a Boulevard

because I do all my riding in the back seat, where, until we equipped, rough roads made their presence felt in a marked manner. Now there is no vibration, jolt or jar. The disagreeable bounce which even deep upholstering failed to counteract is gone. I can forget the road ahead and enjoy real comfort and peace of mind.

Be good to yourself, to your family, to those who ride with you—Hartford-equip and make your car a better riding car. Over 400,000 car owners have done just this.

Less jolt and jar mean lower upkeep, fewer tire renewals, a long-lived car—and best of all—**comfort over every road.**

"Between You and Jolt, Jar and Vibration" is a booklet of intense interest to every car owner. Sent on request.

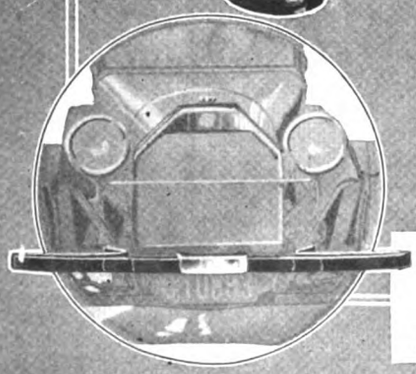
EDWARD V. HARTFORD, Inc.

Heretofore known as
Hartford Suspension Co., 146 Morgan St., Jersey City, N. J.

Makers of the Hartford Shock Absorber, E. V. Hartford Electric Brake, Hartford Auto Jack. Hartford Bump Absorber

Branches: New York, 1846 Broadway, and Service Station, 1926 Broadway; Boston, 319-325 Columbus Avenue; Chicago, 2637 Michigan Avenue.

Distributors in principal cities.
Dealers everywhere



For Safety's Sake
Hartford
BUMP ABSORBER
—more than a Bumper



For Ease and Efficiency
Hartford
AUTO JACK

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FISK

Visible Value
BICYCLE TIRES



A COMPLETE line to appeal to every need. Your customer selects exactly the tire wanted, and the Fisk Sample Box enables him to see exactly what he is getting. Extensively advertised and easy to sell.

Write Dept. 23 for dealer's proposition

THE FISK RUBBER COMPANY
of N. Y.
Chicopee Falls, Mass.

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY

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Business Department
CHARLES B. SHANKS, Manager

Editorial Department
David Beecroft, Managing Editor
S. P. McMinn Ray. W. Sherman
H. F. Blanchard S. T. Williams

Branch Offices
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6900
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The Class Journal Co.

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18 Reasons for Success.....5-6
Lute Morse runs a garage in Lincoln, Nebr., and it's a good one. His reasons for success will bring success to others.
National Dealer Crisis Narrowly Averted.....10-12-42-47
If the threatened railroad strike had occurred, practically all dealers would have gone out of business in 30 days.
Davenport Stages an Open Show.....8-9-50-51
That is, there are no fences between exhibits and prospects find their way in easily.
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They are applying a principle which is old in other trades but new to the garage trade.
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The first day, a Chicago department store drew 50,000 people to its accessory show and they spent 50,000.
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When Time Counts

The thoroughness of our organization together with the size and facilities of our plant assure prompt delivery of SAE Standard Cap Screws, SAE Semi-Finished Nuts, SAE Castellated Nuts, as well as

CORBIN

Automatic Screw Machine Products

When time is an important factor with you it would be well to remember this fact.

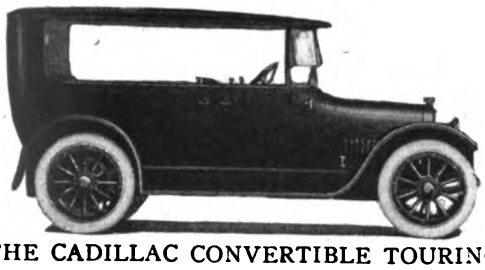
Remember! When placing an order with the Corbin Screw Corporation you are placing it with an organization qualified both by experience and capacity to fill orders in the shortest possible time with products of the highest quality.

We shall be glad to submit quotations and advice on delivery upon receipt of blue prints and specifications.

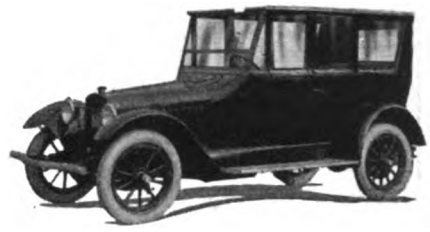
We also manufacture Cap and Set Screws US threads, Machine Screw standard ASME, Machine Screw Nuts, Wood Screws, Stove Bolts, Tire Bolts, Thumb Screws, Thumb Nuts, etc.

THE CORBIN SCREW CORPORATION
The American Hardware Corporation, Successors
NEW BRITAIN, CONN.
BRANCHES: New York Chicago Philadelphia
Makers of Corbin-Brown Speedometers; also makers of Corbin Duplex Coaster Brakes for Bicycles

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THE CADILLAC CONVERTIBLE TOURING CAR



THE CHALMERS CONVERTIBLE SEDAN

Royalty Once Rode in a Coach

Royalty and Success now ride in motor cars.

The Master Coach-builders' Craft was for centuries an art. The building of fine motor-car bodies, possessing all the perfection of handiwork of the veteran coach-builder, with modern materials and labor-saving machinery, is one of the great modern industries handsomely exemplified in

FISHER BODIES

A great army, including royalty and hundreds of thousands of the successful of the world, ride in the Fisher Bodies, supplied for many of the best and most popular motor cars—375,000 cars a year!

It was natural, perhaps almost inevitable, that the Fisher Body Corporation, preserving the traditions of the old coach-builders' craft, building bodies of beauty, strength and durability, should continue one of the strongest of the coach-builders' ideals as to the proper finish of its bodies. The Fisher people use vast quantities of

Valentine's Varnishes

And other painting materials. Just as *all the finest of the old coaches* were painted and varnished with Valentine's Materials for all the royalty of Europe, and all the luxury- and refinement-loving people of America.

The garage paint shop which studies successful modern methods will make no mistake if it also follows the lead of the old carriage-builders in the use of Valentine's painting materials. There is economy and there is the satisfaction of beautiful, durable results in their use.

Send for our book, *"Automobile Painting Systems."*

VALENTINE & COMPANY

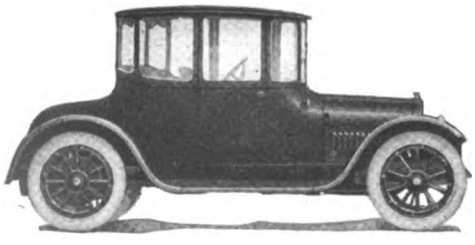
Established 1832

Manufacturers of High-grade Varnishes and Colors

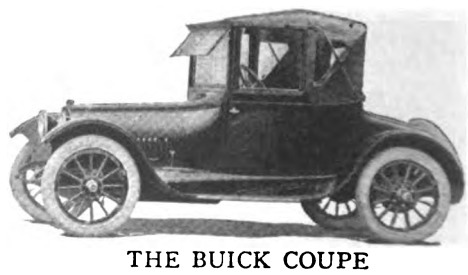
456 Fourth Avenue **New York**

343 So. Dearborn Street, Chicago **74 Pearl Street, Boston**

TRADE VALENTINES VARNISH MARK



THE CADILLAC COUPE



THE BUICK COUPE

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. L New York, U. S. A., Wednesday, March 21, 1917 No. 12

Eighteen Reasons Why Lute Morse Is Successful



Lute Morse
Lincoln, Nebraska

LUTE MORSE owns a garage in Lincoln, Neb. It IS a SUCCESSFUL garage. He employs twelve workers besides himself. His garage occupies three stories, including a basement, and is always RUSHED.

By Allen Sinsheimer

1. HE READS every good motor paper and is INTERESTED in every new accessory or device.

2. He buys a twelfth of a dozen of any new article and TRIES IT. If it goes well he GOES AFTER BUSINESS with it.

3. He will NOT handle goods that are NOT ADVERTISED nationally.

4. He sells ONLY such things as HE CAN RECOMMEND. He has NEVER fooled a customer.

5. He sells ADVERTISED BATTERIES and follows up his selling campaign with newspaper advertisements and PERSONAL LETTERS.

6. On SUNDAY MORNINGS he USES WANT ADS under the classification of "Automobile Notes."

7. He often uses the motor column of the newspaper and at the head of it RUNS HIS SLOGAN "MORSE *SERVICE*."

8. When any of the large tire or accessory makers advertise with him he has A STANDING ORDER to add the line—"And Lute Morse Sellzum in Lincoln."

9. HE WASHES HIS WINDOWS TWICE A WEEK AND CHANGES THE DISPLAY IN THEM EVERY TIME THEY ARE WASHED.

10. He carries OIL and Gasoline, has a FREE AIR machine on the CURB and will TEST ALCOHOL in RADIATORS FREE for MOTORISTS.

11. He does CLEANING and FLUSHING of BATTERIES FREE of CHARGE.

12. When LAST WINTER CAME ON he went to a wholesale saddlery and induced them to CONSIGN $100 worth of robes. HE PUSHED the robes BY PERSONAL APPEAL and LETTERS. The NEXT MONTH his bill with the saddlery was $192.

13. He READ a story of a wonderful run made by the Hudson when it was equipped with Silvertown Cord Tires, lubricated with Veedol and carried Whitmore's compound in the transmission and differential—he had a stock of these goods—AND WROTE A PERSONAL LETTER TO EVERY HUDSON OWNER IN THE COUNTY CALLING ATTENTION TO THE VALUE OF THESE GOODS, SHOWING HOW THEY

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Outside and inside, Morse's garage is spic and span and clean. It is inviting, that's the word

HAD AIDED THE CAR AND TOLD THAT HE HAD THEM IN STOCK. HE SOLD ALL HE HAD ON HAND.

14. He makes a specialty of fancy colored tire covers, radiator and hood covers, robe locks, searchlights, trouble lights, electric cigar lighters, etc. HE DOES MORE THAN CARRY THEM IN STOCK. HE SELLS THEM. In January HE ADVERTISED TO ALL MOTORISTS IN HIS LOCALITY THAT HE WOULD GIVE AWAY, FREE, ONE LOCK WITH EVERY ROBE HE SOLD. THIS PAYS. HE DOES IT OFTEN. IT STIMULATES HIS BUSINESS ALL THE TIME.

15. He employs a student of a local university to devote his afternoons and all day Saturday soliciting business, future battery orders, tire orders and business for all the articles he carries. THIS NOT ONLY PAYS IN BUSINESS GAINED, BUT IT IS A GREAT ADVERTISING METHOD. IT KEEPS MORSE BEFORE MOTOR CAR OWNERS CONSTANTLY.

16. HE KEEPS THE GARAGE AND EVERYTHING IN IT CLEAN. He has only once experienced the trouble that comes when employees use owners' cars. HE DOES NOT ALLOW ANY EMPLOYEE TO USE A CAR.

17. WHILE HIS GARAGE WAS BEING BUILT HE VISITED OTHER GARAGES in many cities and LEARNED WHAT THEY DID TO MAKE SUCCESS.

18. He has an accounting system and engages an expert accountant every month to give him a correct statement of his business. He does not guess at his profits or losses—he knows just what business he is doing every month.

Morse also uses many other plans and ideas. He is always thinking of some way to keep before the car owner. With Christmas coming, he worked up a splendid and attractive little gift book. On the last page HE SUGGESTS MANY SUITABLE GIFTS FOR CAR OWNERS.

When asked how he made his success Morse said:

"My grandmother was quite famous for plum puddings she made and was often asked for the recipe, which she gave willingly; but it was something like this: Mix a pound of raisins and about a pound of currants and add sugar and flour enough to make a stiff batter. Then she put in some of this and a handful of that. When she was through she had told how she made the pudding, but darned if anyone except grandmother ever made one that was a success. I am about like her when you ask me for some of my ideas for getting business."

THAT is one point where MORSE IS WRONG. He told quite plainly and simply how he does it. AND ANYONE CAN DO WHAT MORSE HAS DONE—WHO WILL DO WHAT MORSE DOES—READ—THINK—and WORK.

One of Morse's Letters

Dear Sir:

As an owner of a Hudson car, naturally you have pride in the way it looks and performs.

The Motor World of last week contained an account of a wonderful run made by one of the new Hudson cars, which covered a distance of 1819 miles, practically the entire distance from New York to Lincoln, in twenty-four hours. The car was equipped with Silverton Cord Tires and lubricated with Veedol. Both of these are specialties carried by the Morse Garage.

I offer you the highest grade service it is possible to obtain, a clean, well ventilated garage equipped with a turntable, electric elevator, all the modern appliances known to the industry, and all in charge of competent mechanics and clean, courteous attendants.

Next time your car needs attention, whether it is just to oil it, or to wash and polish it, or your starter or batteries need the services of an expert, try Morservice and see for yourself what a satisfaction it is to you.

May I hope for a share of your patronage, which I will try to merit on the basis of your money's worth or your money back?

Yours very respectfully,
THE MORSE GARAGE.



Inside, the cars are parked in orderly rows and there is plenty of room for the owner to move around

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100 Ideas

for the

Summer Merchandising Number

THE great Summer Merchandising Number of Motor World will be out April 25. In it we are going to put, among other things, the 100 best ideas for getting summer business.

We are going to get these 100 best ideas from the 100 best dealers, garagemen and repairmen among Motor World readers.

Will you help us?

What did you do during the spring and summer of 1916 that brought business to your door?

If you are a car dealer, what way did you stimulate sales and increase business? Some dealers used circular letters, telephone calls, unusual advertising ideas, etc. What did you do?

If you are a garageman, how did you attract transient trade? Some garagemen had new signs painted; some sent out letters to lists of the previous year's tourists; others advertised. What did you do?

If you are a repairman, what did you do to boost your repair business in the summer when the season is ordinarily a little slack? Did you send letters telling how well you could do the work? Did you advertise? What did you do?

Motor World wants the 100 best ideas from dealers, garagemen and repairmen to publish over their signatures in the Summer Merchandising Number.

On the bottom of this page, jot these down in pencil. Never mind about literary style. Just tell us plainly and simply what methods have brought you the most business.

Remember, the slogan this year is to be "Get more than your share."

To accomplish this result you will need a whole flock of new ideas. You will get 100 new ideas from the Summer Merchandising Number of Motor World.

Send along your ideas, now.

This is *My* Best Idea

Editor MOTOR WORLD,
239 *West 39th St., New York:*

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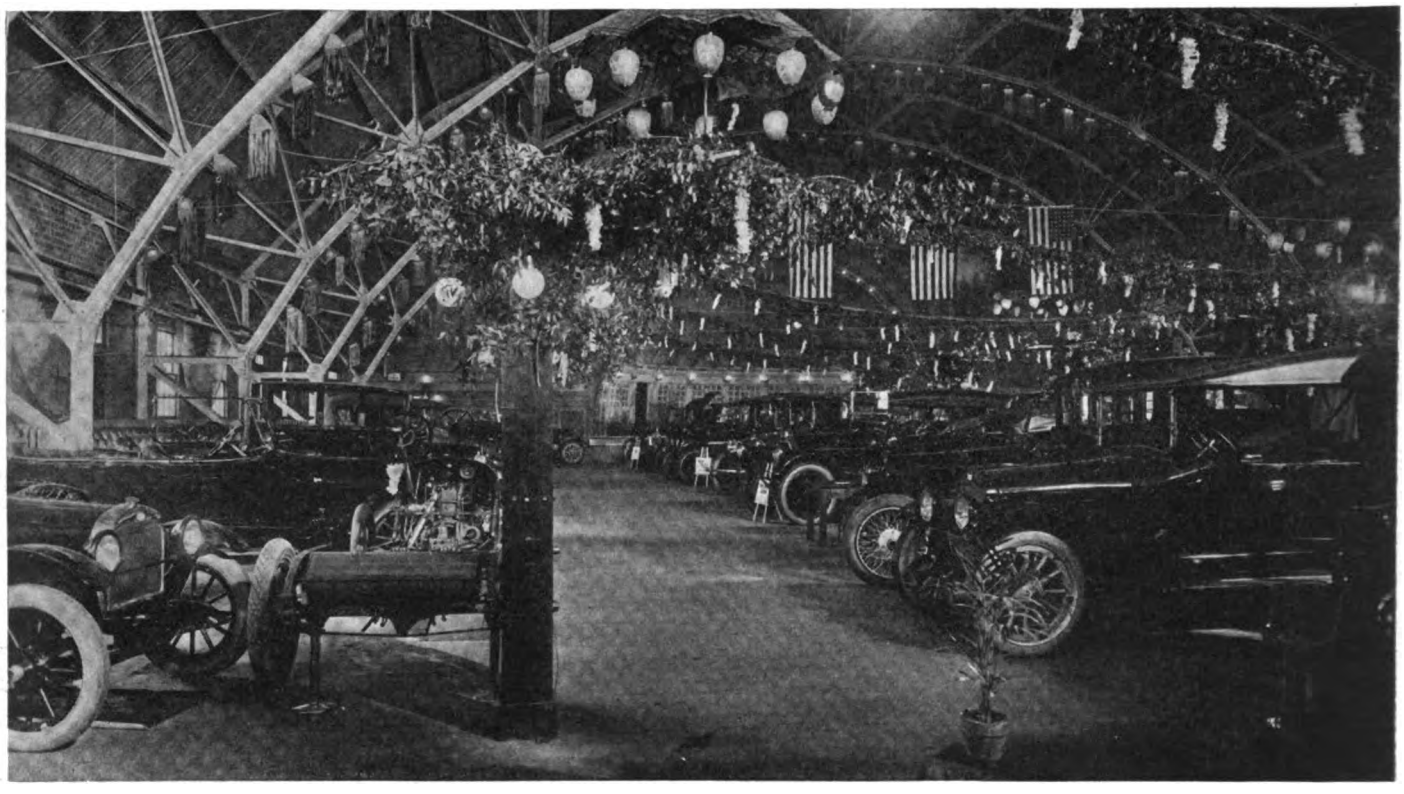
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My name.

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My address.

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From the front of the hall the Tri-Cities show presented an unusually open appearance. There were no booth divisions and so prospects found themselves in an exhibit before they knew it

Davenport Stages An *Open* Show

That is Exhibits Are Not Fenced Off, and Prospects Find Their Way In Easily

BY S. T. WILLIAMS

DAVENPORT, IOWA, March 17—The Davenport Coliseum is the main tent of the show here this week. The show is being given by the Tri-Cities Automobile Trade Association, of Davenport, Rock Island and Moline.

There are 24 separate exhibits, of which 19 are car exhibitors, and 5 are accessory exhibitors. A total of 53 cars are shown, of which 28 are touring, 12 closed cars, 5 roadsters, 4 chasses and 4 electrics.

All the cars are shown on the floor of the coliseum, and the accessories are on a balcony over the entrance. The accessory exhibits, though not large in number, contain a complete line of accessories, and are well arranged.

Exhibits Not Divided

The show is what might be called an open show, as there are no divisions between the various exhibits. It is therefore difficult to tell where one exhibit leaves off, and the next one begins.

The association voted this year to have no divisions between the exhibits, and also voted not to allow any individual decorations such as rugs, attractive desks and chairs, or palms.

They believed this would cut down expenses, and make a more uniform show.

Doubtless the expense was cut down slightly, and perhaps a few more cars were crowded in that otherwise could not have been shown. But they lacked a certain individuality, distinctiveness and class that is essential to a well staged show.

Of the 19 car exhibits, 9 are poorly arranged. Of these 9, 4 would be much more effective if a car were removed, and a re-arrangement made.

The Oakland and Olds exhibit, the Dodge, and the Chevrolet, Buick and Marmon each have a chassis that makes distinctive arrangement impossible. The Saxon and Stephens exhibit had one too many cars. Reo, Paige, Hudson, Maxwell and Stanley are using the front of their exhibit space to hold the cars instead of the prospects.

Doubtless the Coliseum is too small for show purposes, but inasmuch as it is the only space available, there is all the more reason for individual thought and effort to stage the show, One car well shown is worth a dozen poorly shown. A few dollars added for individual decorations is good business.

Prospects Are Identified

The association here has, however, shown that it is open to suggestions. At the Motor World Conference of Automobile Show Managers, held in Chicago, the subject of prospect card passes was discussed. From that discussion, the Tri-Cities decided to adopt the plan.

By this system, each prospect is sent a card, bearing his name, and signed by the dealer sending the pass.

The pass is taken, the stub immediately torn off and sent to the dealer's booth, and the dealer immediately starts gunning for the prospect. Though the dealer has to pay the admission, it is well worth it to know when the prospect enters the gate.

Solving the Pass Problem

Outside of the dealers' and press passes, there is only one other kind of pass issued. These are to school children. On one of these passes, any child may enter the show free if accompanied by an adult on a paid admission.

These passes are only good for Saturday afternoon, and serve to make the children show-boosters all the week. Doubtless this boosts the attendance, and

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this in turn boosts the number of prospects obtained.

Any dealer that has had anything to do with an automobile show knows the advertising troubles that arise during that week. The Tri-Cities dealers are taking a definite step to solve that trouble.

On Wednesday noon, all dealers gathered for a luncheon at the Advertising Club of Davenport. The purpose was for the discussion of show advertisements in the special editions.

It was the opinion that the advertisements were too often written by a man in an Eastern office that was not in touch with the local conditions, and missed in his appeal.

Many advertisements contained exaggerations that any intelligent prospect would immediately discount. They would cause him to enter the exhibit with an established prejudice.

Very few of the advertisements made any mention of the show. It was the opinion of the dealers that the advertisements at show time should push the show, get the people to the exhibits, and let the cars or the salesmen speak for themselves at that time.

Also several of the dealers did not make the most of the space in the papers. Overzealous advertising men often solicit and get contracts for space without regard to the possible returns. As a result the dealer fills that space with poor advertising.

In an endeavor to make the separate business establishments dress up during show week, the dealers association held a window display contest of all the merchants of the Tri-Cities.

Nearly every store window in the cities was especially decorated, and a show poster, and some automobile accessory stores, about 35, entered the contest for a $25 prize.

The winner was Hall & Martin, art dealers in Davenport. This window is attractively decorated with automobile art posters, and automobile tires. Several other stores received honorable mention. The contest did much to make the cities look like motor week.

Following the usual custom, the Clinton Dealers' Association attended the Tri-Cities show in a body Thursday night. They were given a banquet by the Tri-Cities Association. Show problems were discussed. The Tri-Cities Association will reciprocate by attending the Clinton Show next week.

Other Association Activities

The Tri-Cities Association does more than stage the show each year. It has obtained the enactment of uniform traffic regulations in Davenport, Moline and Rock Island. It is trying to solve the difficulties of the automobile trade.

Meetings are held each month, in Davenport, Rock Island and Moline in turn. Each meeting is preceded by a dinner. This dinner is free if the dealer attends, but it costs him $1 if he is absent.

A definite topic is assigned to each meeting, and an outside man obtained for a speaker whenever possible. Used cars, the dealer and the banker, repairs and service, and accounting are a few of the topics discussed, or on the table.

G. F. Burmeister is president of the association, E. G. Don is vice-president, and Ross Beedee is secretary-treasurer.

80 Years Ago Davenporters Dodged Redskins

Now They Dodge the Income Tax and Motor Cars

DAVENPORT, IOWA, March 17—Eighty years ago the inhabitants of this district were busy dodging the redskin. Today they are just as busy dodging the income tax and the motor car. The reason is simple. This is the place that prosperity originates—with the high cost of food products, and $15 hogs.

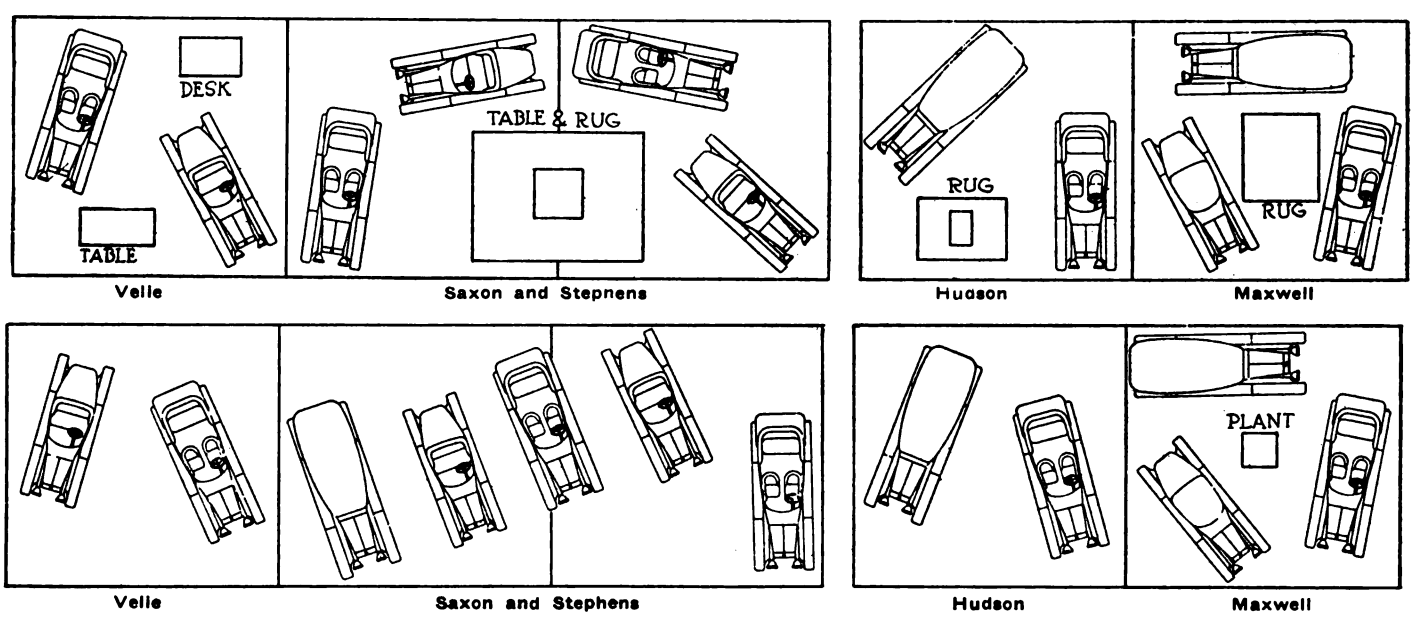
The financial condition of the Iowa territory was covered in the Des Moines show story, but a restatement of a few facts may be pertinent. In 1911 the estimated per capita wealth in Iowa was $4,200. The average per capita wealth in the entire United States is $400. This means Iowa has enormous buying power.

A Car to 12 Persons

As a result, Iowa leads the Union in per capita car ownership. At present there is one machine to every twelve persons, or a total of 200,000 machines in the state. It is estimated that 60,000 machines will be sold in 1917, and that 6,000 of these have already been sold.

(*Continued on page* 50)

The Old Arrangement of Four Exhibits and the New



Above are some diagrams showing how four exhibits looked after Mr. Williams rearranged them. The exhibits as originally laid out are shown below and are stiff and reserved. The new arrangement gives a more pleasing appearance, easier entrance and more room for prospects

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National Dealer Crisis Narrowly Averted

A RAILROAD STRIKE WOULD HAVE STOPPED ALL BUSINESS IN 30 DAYS

THE threatened national tie-up of railroads has been averted, but it has brought to light a condition of affairs which probably no dealer suspected.

Had the strike become a fact, a large proportion of dealers would have been out of business in 30 days. Shipments have been bad up to this time and such a tie-up as was threatened would have been nothing short of a catastrophe.

Here is a summary of conditions. It shows that few dealers have cars to last more than three weeks; that stocks of tires are in many cases below normal; and that some cities soon would be in dire need of gasoline.

ALBANY, N. Y.—For the past month shipment of cars has been very bad. But very few carloads have been received and there are not many cars in stock. It is estimated that it will take more than 700 cars to fill the orders for spring delivery.

Dealers are pinning their hopes on the opening of navigation on the Great Lakes, believing that when the ice moves out a sufficient number of cars to carry them along can be shipped from lake points such as Detroit and Cleveland to Buffalo. From Buffalo it is planned to send the cars over the roads to Albany. For this purpose the dealers have been planning for several days past, when they saw that there was a possibility of freight shipments being delayed. Many took advantage of this recently and ordered their cars sent by express, but even at this the number was increased only by a very few.

The Albany Garage did succeed in getting one or two carloads of Hupmobiles from Cleveland, but many more are needed.

There is a 30-day supply of gasoline in Albany and tires enough to last for perhaps 2 months, according to estimates furnished by dealers who were canvassed.

"It will be easy to deliver Hupmobiles and Peerless cars," said Chauncey Hakes, president of the Albany Garage, "when the navigation season on Lake Erie opens. We expect this very soon. It is only a matter of a 2 days' drive from Buffalo with a new car. A year ago we had $300,000 worth of cars, 102 in all. Now everything is sold and we are looking for more cars. The lake season is our only hope, for we cannot expect much from the railroads."

Westcott Burlingame, agent for the Cadillac, is already making plans to send a number of drivers to Buffalo as soon as the navigation season opens. "We have only a few cars in stock, nowhere near enough to fill our orders. Conditions have improved slightly but not sufficiently to give us any cheer."

The Studebaker agency is not at all alarmed. The agency has a good stock and expects to make all of its spring deliveries. If the supply of motor cars runs short it is planned to follow the other dealers and send cars over the road from Buffalo.

Overland has only a few cars in stock and is anxiously awaiting developments. No plans have been made as yet for running the motor cars overland, but this may have to be resorted to later in the season.

The Maxwell agency here needs 250 cars, of which 50 are for delivery within a very short time. The agency plans to bring the cars in from Buffalo unless the railroad situation improves so that it will be possible to get them through. The local agency was one of the first to get three or four carloads through by express, but of course did not receive a sufficient quantity.

The Ford agency has a number of cars in stock, but is expecting to be obliged, when the season opens, to drive the cars in from Buffalo.

The Situation at a Glance

Albany—700 cars on hand. Gasoline might last 30 days and tires two months.
Baltimore—Cars might last 30 days; gasoline not more than 1 week.
Detroit—Every factory with few exceptions would close down within 7 days for want of parts.
Columbus—Cars might last several weeks; gasoline 30 days. Nearness to Akron solves tire problem.
Dallas—Car trade would be paralyzed in 2 weeks. Plenty of gasoline and tires.
Des Moines—About 700 cars on hand, which would last two weeks. Tires and gasoline are short.
Hartford—Cars would last several weeks, gasoline 2 or 3 weeks; tire situation good.
Indianapolis—Situation would not be desperate because of nearness of factories. Gasoline would last 2 weeks.
Kansas City—Cars would not last 1 month; no trouble with gasoline; good supply of tires.
Louisville—Few dealers have cars stored; some standard size tires already exhausted; no gasoline trouble.
Milwaukee—One week's strike would demoralize car trade; gasoline would last 2 to 3 months. Plenty of tires.
Nashville—Many car dealers would close immediately; gasoline would last 1 week; tire situation fairly satisfactory.
Omaha—Cars might last 3 weeks; tire supply about 1 month; gasoline situation good.
Pittsburgh—Cars would last 2 weeks; gasoline situation good; tires would last several weeks.
San Francisco—Cars would last 30 days; tires already short; gasoline situation satisfactory.
Syracuse—Cars would last 2 weeks.
New York—Cars would last 1 month; tires and gasoline indefinitely.
Denver—Cars might last 1 month; tires and gasoline short now.

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BALTIMORE, MD.—Very few dealers have a supply of cars that will last more than 30 days should there be a few weeks of warm, clear weather.

Should the railroads force the embargo over any period many of the dealers plan to drive their machines from factories. This is especially true of the Chandler, Overland, Willys-Knight, Peerless, Buick, and a few others. But with most of the dealers the opinion appears well grounded that there will be no strike and the freight situation will not get much worse than it has been for some weeks past.

The fuel situation here is also a serious one, and would mean the crippling of most of the small oil companies. The Standard Oil Co. has a big refinery here, but the crude oil used in refining gasoline at the Canton plant is none too large, because it is brought from Mexico in tank steamers, which have been rather scarce of late. At this time should an embargo be declared the supply of gasoline in town, with the possible exception of the Standard, would not last more than a week.

Jacob Blaustein, Jr., of the American Oil Co., the largest independent company in the city, said that should the embargo become really effective it would be a serious situation. "Most of the gasoline used here," continued Blaustein, "comes from the Pennsylvania oil fields and the shortage of tank cars for some time past is responsible for the small supply on hand at this time. The embargos of the past few months have only interrupted us for a few days at a time, but freight shipments have all been slow. We have a fairly good supply just outside of Baltimore at our reserve station at Wagner's Point, but this would not last very long. The question of bringing gas to Baltimore on motor truck tanks is almost out of the question, in view of sthe distance, which means prohibitive charges, but getting a sufficient number of tank trucks would take several months.

"Lubricating oil is scarce and we are also having trouble getting tins to fill. One month was required to get a carload unloaded from St. Louis to Baltimore, 5 days being required for the Northern Central to transfer it from Calvert station to the Baltimore & Ohio to land on our siding at Locust Point, a distance of about nine miles right inside of the city.

"The tire situation is also a serious one. Companies like Firestone, Goodyear, United States, Goodrich and Fisk have supplies that will last less than a month and on some sizes only a few weeks. Freight shipments from Akron, which formerly consumed about a week, have been taking 3 and 4 weeks before delivery. The smaller companies are all up against it, many of the factories reporting that they are short on material. There is a possibility of some of the tire companies arranging motor truck transportation between their factories and this city should the strike take place."

"We would not be able to handle the situation for more than 2 weeks," commented B. R. Leisure, local manager of the Firestone Tire & Rubber Co., "for that is about the supply we have on hand. I have no doubt but that our factory would have a line of powerful motor trucks ready to handle this situation should the embargo become effective, for they have been figuring out for some time the future of motor truck transportation from many points. I still hope, however, that we will not be forced to the great inconvenience of facing a strike situation."

Thomas G. Young of the Auto Supply Co., one of the largest accessory companies here and whose firm does a big business throughout the South and all over Maryland, had this to say: "While we have a pretty good supply of accessories on hand, goods that we receive from the Middle West factories are what will affect us. Articles that we receive from New York and Philadelphia we will be able to get by motor truck transportation. Our real problem is how to handle the business outside of Maryland should the strike come and bring on the embargo. We have already arranged for motor truck transportation throughout the state in event of the strike, but our Southern business would suffer because we would not be able to reach many points. Our stock on hand would carry us for several months."

E. R. Myers, general manager of the Motor Car Co., Overland and Willys-Knight distributer, said: "Our stock is lower just now than it has been for many years at this season. At this time we only have about 50 per cent of the stock we had on hand last year. We have 25 carloads on the road somewhere between Toledo and Baltimore, but it takes a long time for us to get them in. Should the strike come it is a question as to when they will really arrive here. Since Toledo is not such a distance from Baltimore and the roads are good for the most part, we will undoubtedly make big 'drive-aways' to care for our customers."

Arthur Stanley Zell, president of the Zell Motor Car Co., Peerless and Chalmers distributer, said: "We have on hand sufficient Chalmers to take care of our business for less than 60 days and have two or three carloads on the road. With Peerless the situation is different. We are back on shipments from 30 to 45 days. It is a much better drive from Cleveland to Baltimore and we will drive Peerless cars to make delivery should the tie-up come. With Chalmers it is different, because Detroit is some drive from Baltimore, but in the end we may be forced to do that also."

James J. Flynn, manager of the Chevrolet branch, said: "We only have cars on hand to carry us over about 10 days and have several carloads on the road, but don't know when they will get in. If the Tarrytown factory keeps running we will drive from there to Baltimore, which is not a bad drive, but Flint, Mich., is a real grind."

The Chevrolet branch here is so short of models that it was necessary to bring touring cars and roadster models from the Washington branch by motor trucks to have a full line of models at the opening of the branch, which is taking place this week.

L. E. Lambert, the local Hudson distributer, has been getting carloads of Hudsons in by express for weeks past and has a fair supply on hand, but a month of good clear weather would cut his stock down.

Auto Outing Company, Buick distributer, is short on receiving allotments from the factory and is already planning to drive cars from the factory, which they did last year, bringing 40 to Baltimore in one party.

H. S. Block, Chandler distributer, has only a few cars on hand, but plans to drive from Cleveland should the tie-up come.

H. D. Caplan, of the Central Automobile Co., Empire distributer, will arrange for a driveway should he be unable to get cars through. Just now he is practically sold out.

E. C. Trace, of the Standard-Garford Co., distributer for the Standard Eight, has been driving cars from Pittsburgh for some time past, as has been the Murray Sales Co., distributers for the Murray Eight.

Habersham-Miller Co., the new Republic distributer, has been driving Republic chassis from Harrisburg, Philadelphia, York and other points and will make even longer drives if they can continue to get their models.

Pullman cars and Atlas trucks, made in York, Pa., are being driven over the road, saving freight and making much better time. There are many dealers with cars somewhere on the road and only a few besides those above mentioned have a month's supply on hand.

BRIDGEPORT, CONN.—Dealers are not over-sanguine about the local situation and yet they are not quite ready to give way to panic. Most of them have a supply of cars on hand, due in a measure to added consignments having been received for the recent show.

Others will drive cars from factories. The great difficulty with this plan, however, seems to be the time needed. Few dealers are able to afford either time or men for this slow work.

Dealers are practically unanimous in agreeing that there can be no gasoline famine. As one dealer expresses it, "the gasoline is 'pipe stuff.'" Which merely means that practically all the gasoline supply is piped to Bayonne, N. J., and from there by water route, which will obviate trouble in that direction.

Bridgeport dealers have reserve stocks of cars which vary from twenty-five cars to seventy. To be sure, there are only a very few dealers who have any such reserve stock, but all seem to be certain that, unless prolonged trouble comes, they will be able to handle the demand without undue difficulty.

COLUMBUS, OHIO—Generally speaking Columbus and central Ohio are in fairly good shape. While not much special preparation has been made by dealers, tire agents and gasoline and oil concerns, still the Buckeye capital can be cited as in good condition. In other words, a prolonged strike would not affect central Ohio as much as it might other sections.

One of the principal reasons for this condition is the comparative nearness of Columbus to the majority of the motor car factories. Because of the freight congestion and scarcity of cars during the past few months Columbus dealers have been driving from factories in Detroit, Toledo and Michigan cities to dealers in Columbus proper, and many more to dealers in central Ohio territory. This is now temporarily stopped because of bad roads in Michigan, but will be resumed soon as the road conditions are bettered.

A canvass of automobile dealers in Columbus shows that quite a few have sufficient cars on hand to take care of deliveries for several weeks at least.

The Oscar Lear Motor Car Co., Buick dealer, has enough for three weeks. These cars have been secured by driving through from Flint, Mich., as no railroad shipments have been received since December.

The Columbus Overland Co. also has sufficient cars to take care of deliveries for some time and road conditions in Ohio are still good enough for driving.

The Capital Motor Car Co., Reo and Pierce dealer, is short of cars. As far as this company is concerned it has been suffering from freight congestion, which approaches the

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effects of a complete tie-up. This concern has been driving cars through for several months but the roads are now in such shape that driving has been temporarily abandoned.

Harry B. Cann, Packard dealer, is fairly well supplied with cars, although driving has temporarily ceased. Cann is in condition to make some deliveries during the coming few weeks.

The Ohio Auto Sales Co., Dodge agency, is fairly well supplied with cars, although there is a shortage which the concern has been unable to overcome. Driving of cars from Detroit has been the principal source of receipts of cars for the past few months.

The Standard Motor Car Co. has some cars for delivery during late March and early April. It is the central Ohio representative for the Hudson and many cars have been driven from the factory during January and February when the roads were frozen. Mr. Schwartz, president of the company, claims that the strike will not affect his concern to any marked extent.

The Hudson factory has been driving scores and even hundreds of cars to Columbus and here than shipping them on freight cars to eastern and southern points. That was one of the principal means of shipping cars for the Hudson, but bad roads has temporarily stopped this work.

The Columbus Cadillac Co., of which Ralph G. Wilson is general manager, has been having trouble all spring in getting sufficient cars, and driving has been resorted to. There is a shortage of Cadillacs, but the railroad strike will not make conditions much worse than at present.

Driving from factories located in Indianapolis and Indiana factories still continues, as the roads have been quite good. The same is true of cars from the factory at Springfield, Ohio.

In regard to the gasoline and oil situation, Columbus is also in fairly good shape. The local branch of the Standard Oil Co. has sufficient gasoline for 30 days without any receipts. The same is true of lubricating oils. The Moore Oil Co. has a supply for 60 days, according to its general manager. The Central Ohio Oil Co. has a month's supply and the National Refining Co. reports a surplus to cover three weeks' consumption. Columbus uses approximately 20,000 gallons of gasoline daily. This is divided among automobile owners and dry cleaners. The 10,000 cars in Columbus are credited with a consumption of about two gallons each per day.

The tire situation is not quite so satisfactory, although the nearness to the large factories at Akron solves the difficulty to a certain extent. The branch houses have supplies to last from three weeks to a month. But there is a shortage in some sizes at present and if the strike ties up freight this shortage in sizes will become more pronounced. The shortage is principally in 34 x 4 and 31 x 4.

Preparations have been made by some agents and branch managers to run motor trucks from the factories at Akron to supply the deficiency if such occurs. The local Firestone branch has a supply for a month, unless the dealers in 33 counties tributary to the branch are unable to get stock, and if such is the case the supply is not sufficient for more than two weeks.

DETROIT—The railroad strike threatened the gasoline and oil supply of Detroit seriously. There is about one week's supply on hand at present, and this the various companies hope to augment to some extent by the use of trucks which they will use to transport gasoline to Detroit. There are thousands of gallons stored in the plants of the various factories, which in event of need will be diverted from use for driveaways and will be given to trucks used to carry dairy products and other foods into the city.

DALLAS, TEX.—A strike of any duration would paralyze business in Texas. Dallas dealers express the belief cars now in storage in this state will not last longer than 2 weeks.

Of 20 prominent Dallas dealers in higher-priced machines, but one firm has a sufficient number of cars to last longer than 2 weeks.

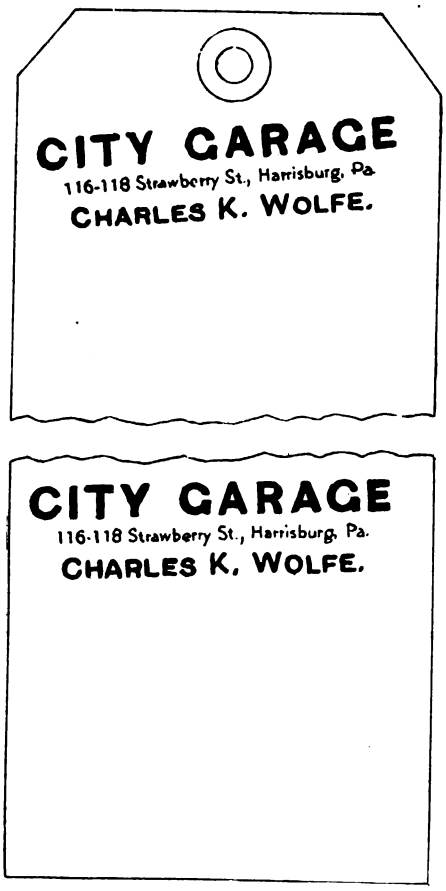
Although no dealers have made any plans to go to the factories because of the great distance from this point, it is very probable that cars would be brought here overland, that is in cases where purchasers are willing to pay the cost. In some instances it is intimated that prospective buyers who cannot get the make they want on the Dallas market will go to the factories and drive them overland.

Accessory and tire concerns are unusually well stocked. Many of the houses have big shipments en route and unless these are received soon there would be a shortage in certain makes of tires.

Because of the oil industry in Texas, a strike would not hurt the gasoline situation, as the Texas Co. maintains one of its biggest refineries in this state and the gasoline could be hauled overland in a short time to all points of the state.

(*Continued on page* 42.)

Simple Transient Card



This is the card used by Charles K. Wolfe for checking the cars of transient customers. It is a plain Dennison card with his name and address stamped on it with a rubber stamp, top and bottom. The top half goes on the car and the bottom half to the owner. They are matched like a Chinese laundry ticket when the owner comes for his car.

Columbia Holds Its Show

COLUMBIA, S. C., March 19—Columbia's second annual motor exhibition attracted several thousand visitors during its session of 4 days and members of the Columbia Automobile Association, Inc., who staged the show announce that it has been a success. Members of the association are: Black-Frasier Motor Car Co., Carolina-Saxon Co., Carolina Auto Co., Consolidated Auto Co., Dixie Auto Co., DuPre Auto Co., Gibbes Machinery Co., Overland-Columbia Co., Sotille-Cadillac Co., Southern Motor Car Co.

The show opened Wednesday, March 14, and closed Saturday night. James D. Lee, who had charge of the arrangements, said Saturday night that approximately 5000 persons visited Craven Hall, where the exhibition was given, during the four days from 11 a. m. to 10:30 p. m.

The exhibition was held in the largest available hall but the space proved insufficient to supply the demand, several exhibits being staged in nearby buildings. The main floor was devoted to cars arranged in booths separated by railings. Streamers, bunting, national, state and city flags with flowers made up the decorations.

The show, held in the capital, is really a South Carolina event, the dealers proposing to appeal to the entire state and visitors were present from every section. Columbia is almost exactly in the center of the state and draws motor car patrons from nearly every county. Charleston is an exception, of course, the seaport city having its distributers, too, and this year held a motor car show.

Dealers expressed themselves as pleased with the business produced by the exhibition. Many South Carolina farmers sold cotton at 20 cents the pound this year and some of this class were seen at the exhibition. The financial condition of the entire state is regarded as sound, according to dealers. The exhibition sells some cars on the spot but the real benefit is said to be the prospects developed to the point where a sale is possible. Dealers say the show is worth while.

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Get Set

TODAY is the first day of Spring. Have you started to get ready for that big summer business that is hurtling over the horizon? Have you done anything to be prepared for the rush of tourists that will soon be flocking to your doors?

Now is the time to do the getting ready. Not a week or a month from now. Start something today. Here's a starter.

Go out and look over the walks in front of your garage. Take a look at the roads in front of it. Pretty badly torn up after the winter's snows, aren't they?

Clean them up. Level up the walk. Get out in the road with a spade and clear away the dirt and mud from the sides. Have everything spic and span. Once you have made a start the rest will be easy.

Get out in the middle of the road and take a look at your garage. Can't it be improved somewhere? Any broken panes of glass in the windows? Are the windows clean?

How's the paint? Couldn't it stand a little touching up here and there? And what is the matter with a whole new coat of paint? Paint the garage a bright color. Make it stand out of the landscape—or out from the other buildings—so no one can possibly miss it.

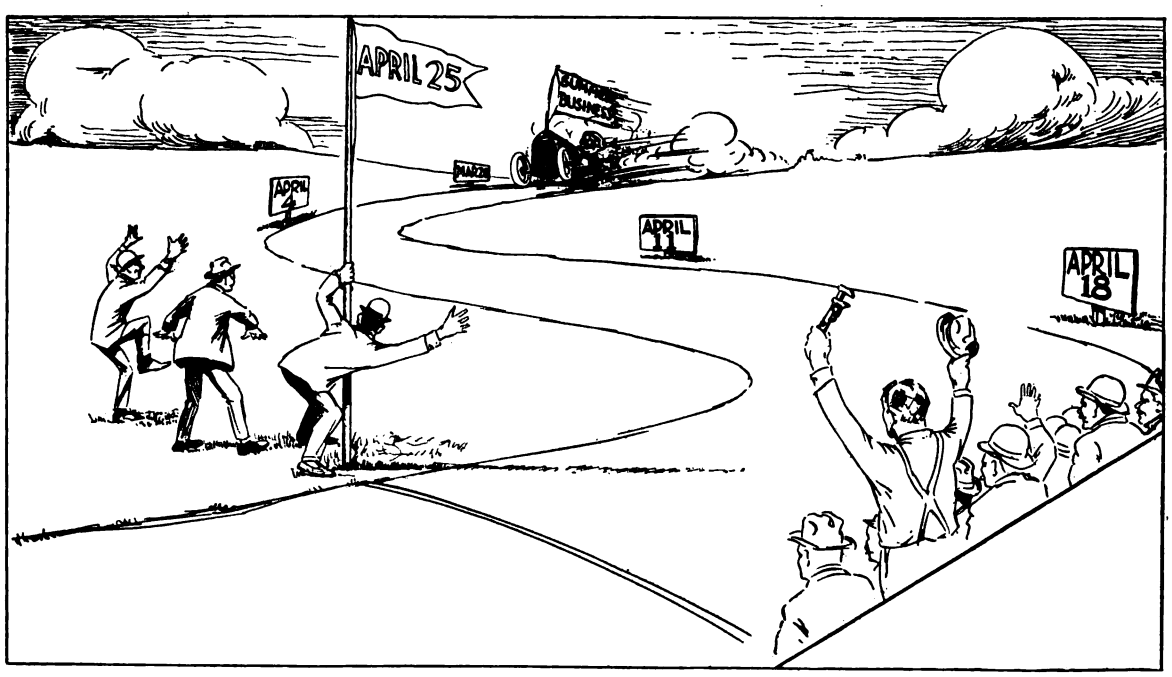
Make motorists see it—and want to come in and do business with you.

That's the way to get ready for Spring business. Start something.

Don't run around in circles, however. Have a definite plan. Know just what you are going to do first, before you start. And then go to it.

The great big Summer Merchandising Number of MOTOR WORLD will be here April 25. You ought to be ready to take advantage of the merchandising plans that will be given in it.

We want you to be ready. Get set.



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New York Garagemen Consolidate by Dividing

IN unity there was strength, but there was a disconcerting lack of action because of the great difference in interests in different sections of the city. But the trouble has been overcome quite simply and easily. Read about it.

NEW YORK garagemen have got the big idea. They believe in a division of labors and a consolidation of interests. In unity they found strength—but there was a discouraging lack of action—action which would bring about eradication of evils and a readjustment for the good of all.

In consequence, the New York Garage Association, Inc., which numbers among its members about 80 garagemen in the metropolis, has adopted a plan which is altogether novel in garage trade associations though in principle it has been tried and found true in nearly every other walk of life.

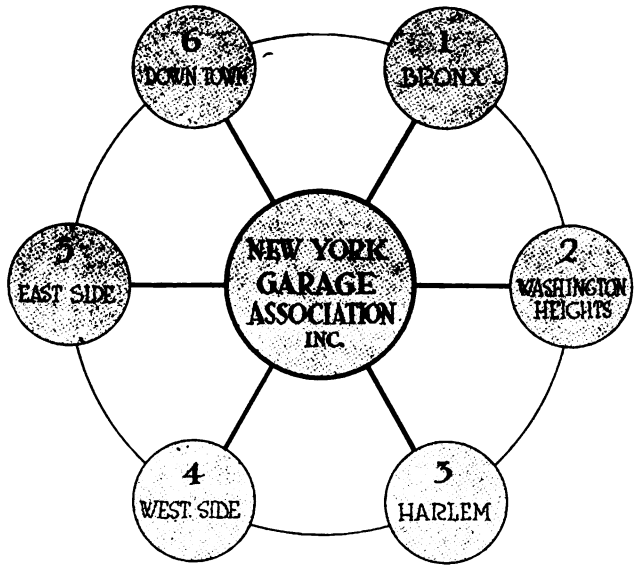
In short, the association will divide its membership into a number of sections, or branches or locals. Each section will be headed by a chairman and will have its own set of officers; it will be a complete organization in itself, transacting its own business and what is more important transmitting its deliberations and recommendations direct to the parent body.

The Plan's Advantages

Charles A. Stewart, secretary of the association, is the father of the idea, which has a number of plainly apparent advantages. Foremost among these is that it centers the attention of the garagemen in any given section on the problems peculiar to that section. Every member of the section has these common troubles, and so every member is vitally interested in their solution. Hence, action results.

Under the old plan, with the garagemen scattered over a big area which divides itself into a number of clearly defined sections where conditions are widely different, problems differed to such an extent that the uptown garageman had no interest in the problems of the downtown man. The same condition prevailed to only a slightly lesser degree between the garagemen located on the East side and those on the West side.

The price received for storage has always been a mooted question between garagemen in different sections of the city. West side garagemen have been somewhat disappointed that they have been unable to obtain prices as high as those believed to prevail on the East side, and vice versa. Any attempt to bring these factions together under a proposed standard rate has always met with difficulty and dissension. One side has always maintained that its conditions are such that rates prevailing on the other side would be altogether wrong, that any standardization of rates would work a hardship, etc.



Here is a diagram of the plan of the New York Garage Association which ties the six branches to the parent body together

Each Section Complete

Under the new plan, each section will manage its own affairs. Problems peculiar to that section will be discussed by members of the section, and these men will reach their own conclusions based upon conditions in their own section.

Thus, if East side garagemen discover a wide difference in storage rates in their own section an attempt to standardize rates in that section will be made, irrespective of the rates that may be charged in any other section. The other sections will proceed along the same lines, each adopting standards to meet its own requirements.

The fact that the chairman of each section is also a member of the board of directors of the parent body is important. This ties the whole organization tightly together. At board meetings the chairmen of the various sections report the action of their respective sections and in this way a knowledge of the garage affairs of the whole city is made available to every garageman. Chairmen of sections report back to their sections the action taken by the parent body.

Getting oncerted Action

Any question involving the garages in all sections would be taken up by each section and threshed out in meeting. The chairman would then report the opinion of his constituents to the parent body and concerted action could then be taken. Heretofore concerted action has been virtually impossible because of the impossibility of harmonizing interests.

Other important matters which will be taken up by the different sections embrace the standardization of labor rates such as the wages of garage employees, etc. Some garages now are paying their washers and polishers $2.50 a day for 7 days a week; others are paying $3 a day for 6 days. This could be adjusted.

At present it is necessary for individual garagemen to go to a bureau far distant from their garages for help in case of emergency. The new plan contemplates the establishment of a central bureau where records of workers could be kept and where applications for employment might be made. Any garageman could then telephone the bureau and

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obtain a good man at once. This is not always possible now.

The New York Garage Association is actively going ahead with the plan. At a board of directors meeting last week a committee was appointed to organize the various locals. The members of the committee are F. J. Hinners, Mott Haven Garage; Wm. Burrows, Niagara Livery & Motor Co.; C. H. Potter, Uptown Garage. Hinners already has organized a local.

To Make Six Sections

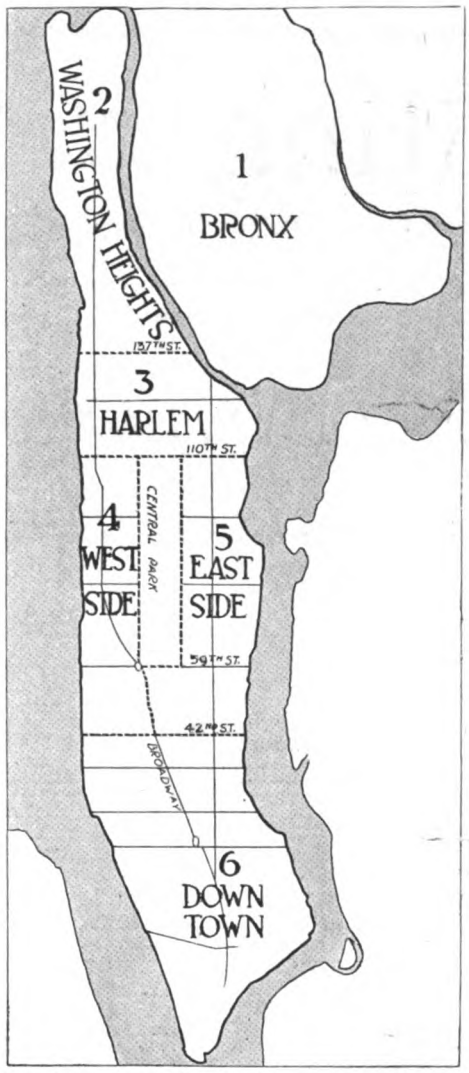
The plan is to split the city tentatively into six sections, East side, West side, Bronx, Harlem, Washington Heights and Downtown. The city naturally divides itself in about this way and conditions in each section, in some cases to a slight degree, and in other cases to a marked degree.

The individual sections plan to hold weekly meetings, probably at luncheon. Their chairmen will meet at the regular monthly meetings of the parent body. All members are members of the New York Garage Association and pay their dues to it. Sections may perhaps assess members a small amount to defray such clerical expense as may be necessary.

Principle Is Broad

The principle is a broad one and is applicable to many other large trade centers where garages are widely separated. In such cases it is not always possible to harmonize interests and it would seem that a division of this kind would work for the good of all.

At the meeting of the board of directors the association placed itself on record as favoring the passage of Assembly bill No. 411, introduced by Mr. Whitney. This measure amends the existing lien law and makes it possible for a garageman to repossess a car after it has left his possession and regardless of where it may be found.



This is how New York garagemen divide the city

Wants Repairwork Registered

AUSTIN, TEX., March 19—A bill has been introduced in the legislature which would make necessary the recording by repairmen of all cars on which repair work is done. It is hoped that the measure, if passed, will assist in the detecting of thieves by assisting in the identification of cars which may perhaps be altered so as to be unrecognizable and then offered for sale.

Fire Extinguisher Insurance

NEW YORK, March 19—Now it's fire extinguisher insurance. The Pyrene Mfg. Co. has completed arrangements with the National Surety Co. for the issuance of policies covering the loss or theft of fire extinguishers. The policy runs from 2½ to 3½ years, and is issued upon payment of a 25-cent premium. Extinguishers are replaced upon proof of loss to the surety company.

Louisiana Considers Depreciation

BATON ROGUE, LA., March 12.—The Board of State Affairs has issued the following instructions to parish officials for the assessment of automobiles for general taxation: Deduction of 15 per cent of cost price first year; deduction of 35 per cent of cost price second year; third year, 50 per cent of cost price. For fourth and subsequent years, owner shall be required to make affidavit as to cash value of his machine.

We all Need Room for Expansion

THERE is a department store in Los Angeles that has an excellent slogan. Here it is: "To build a business that will never know completion, but that will advance continually to meet advancing conditions."

Here is a slogan that every dealer and garageman can paste in his hat. "In life we must progress," says another far-thinking business man. And to progress means that we must expand, grow larger.

But how many dealers and garagemen have thought far enough in advance, have planned for the expansion that must be made if they are to keep up with the march of progress. Some have, but the majority have not.

Take the case of a great and nationally known motor car factory which recently moved its New York branch into a beautiful new building. Nothing was spared to make that building the very acme of perfection, the latest and most modern of its kind.

Yet on the day the organization moved into the building it was found to be too small. *After months of making the building the best of its kind it was not made big enough.* There was no room for expansion, growth. No account was taken of the march of progress, of the increasing number of cars in use in the metropolitan territory.

And everywhere all over the country there is the same cry: "Too small." The concern that has room to expand, to grow, is not lucky. *It is a good business concern.* Its heads have looked into the future and provided for that day when expansion must be made.

This is what must be done with every garage. Its owner must look far enough into the future to be able to provide for growth. If necessary he must put up a building twice or three times too big and perhaps rent that part he is not using. This gives room for expansion. One of the most successful dealers in a Connecticut city recently put up a beautiful new building. The foundations will permit of another story being added. There is enough ground to add an extension if necessary—and it will be necessary soon.

"To build a business . . . that will advance continually to meet advancing conditions" is an excellent slogan.

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Accounting and Business System

Questions and Answers about Motor World's Simplified System of Accounting

By T. W. Snead

Revised Form 2 Simplifies Controlling Accounts Payable

Special Columns Have Been Provided to Enter Accounts Payable

DATE 191 — CASH PAID AND EXPENSE RECORD — D E B I T S

STOCK ACCOUNTS			EXPENSE ACCOUNTS								
AM'T.		NAME	GENERAL DEP'T. AM'T.	GENERAL DEP'T. ACCOUNT.	GAS DEP'T. AM'T.	GAS DEP'T. ACCOUNT	REPAIR DEP'T. AM'T.	REPAIR DEP'T. ACCOUNT	STORAGE DEP'T. AM'T.	STORAGE DEP'T. ACCOUNT	
45	80	Accessory Stock									A
100	00	Tire Stock									B
425	00	Car Stock									C

The illustration above and the one on the opposite page show the revised and improved ruling on Form 2 of Motor World Simplified System of Accounting

IN order to make it simpler to control the Accounts Payable as separated from All Other Accounts in the MOTOR WORLD accounting system, Form 2 has been revised and designed to separate those accounts owing to jobbers, manufacturers and others from all other liability accounts.

By glancing at the illustration, you will notice that on the debit and credit side of Form 2 special columns have been provided in which to enter the accounts that you are liable for goods or other debts.

Then when these accounts are paid later on in the month, or in the month following, a special column has been provided on the debit side in which to enter these amounts. You will notice that these columns are entirely separated from the All Other Accounts column in which column on the old form every such item was entered and at the end of the month, all items belonging to a like account such as Accounts Payable were separated from the total.

This entailed a great deal of time and sometime confusion, and in order to eliminate this, MOTOR WORLD has revised this form.

ENTRY A.

In this entry you will notice that we show a credit to Accounts Payable to jobbers for $45.80 and the particular jobber is Beebe & Company. The offsetting entry was a charge to our stock account as this was for accessory stock that was placed on our shelves for sale.

ENTRY B

In the next entry we give credit to the A. Z. Tire Co. for $100 and debit this amount to our tire stock.

ENTRY C

In this entry we credit the Blank Motor Co. with $425 debiting this amount on the debit side of Form 2 to our Car Stock.

Read This

THESE new Forms have been devised to make still simpler the operation of this system.

The Forms are now ready for distribution and cost $1.75 *per hundred. Send orders direct to Motor World, 239 West 39th street, New York.*

ENTRY D

Here we give credit to the Kenyon Mfg. Co. for $8.75 charging the amount to our Car Sales Expense—Demonstrating, and a like entry is made in entry E, crediting the A. C. Horn Co.

ENTRY F

In this entry we credit the Hope Machine Co., $105, debiting the amount in the All Other Accounts column on the Debit side to furniture and fixtures as this was equipment or fixtures that we purchased for the business.

You will notice that these accounts Payable total $689.23 and for sake of illustration, we will assume that we have gone forward to the next month and are ready to pay the accounts that we entered on Form 2 at the end of last month.

ENTRY G

We draw our check in this entry to Beebe & Co. for $44.88 and credit Cash Discount Taken 92 cents and our Debit is to Accounts Payable, Beebe & Co., $45.80. This debit offsets the credit that we made in Entry A, the month previous.

ENTRY H

In this entry we debit accounts payable, $8.75, Kenyon Mfg. Co. and credit our Cash Paid accounts by check No. 226 for a like amount. This offsets en-

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try D that we made the month previous.

Entries I and J

These two entries debited to Accounts Payable offset Entry E and F made the month previous and by now glancing at our total on the Debit side under Accounts Payable paid off, we notice a total of $164.23 and subtracting this from the total that we credited to Accounts Payable the previous month, will leave net Accounts Payable of $525.

PROVING ACCOUNTS PAYABLE

We have a balance left in our Accounts Payable of $525 and on the Debit side under Accounts Paid Off, you will notice that we debited four accounts. This leaves two accounts that we credited the previous still open and by elimination, we find these to be entries B and C, amounting to $100 and $425 to the A. Z. Tire Co. and the Blank Motor Co. These two credits to Accounts Payable total $525 and as this is the amount left in our Liability account, we are able to say that this account is absolutely correct.

Service Cars

Editor System Department: We have your System installed and in use for the past year. The first of January, 1917, we put on some service cars, hauling passengers regularly. This is something we haven't had the past year so we wish to keep this separate from the other business as we have drivers for these cars and that is all they do. They are paid out of what the cars take in. We were not using the column for Car Sales so we put the income in this on Form 1 and the Expense on Form 2.

Now when we take a tire out of stock and gas and oil for these cars, we have been billing this at cost on Form 2 and showing this as a Journal Entry, and we don't know whether it is right or not.

At the end of the month, in taking the cost of gas, oil and accessories sold, do we also add the cost of these used to this or not? If we don't it will show more of these on hand than there is. Please let us hear from you on this.—Holmes Garage, Carterville, ill.

When a tire or any supplies are taken from your stock for the use of your service cars, they would be handled simply as a sale to a customer except that it would be charged to Service Car Expense in the All Other Accounts column on the Debit side of Form 1 and the income placed under Sale of Accessories, or whatever other department gained a benefit.

This should be figured at cost without added profit and at the end of the month in arriving at the cost of goods sold, should be deducted from your Income and also from your Inventory of Stock On Hand. You would, of course, include these sales or the cost of these sales when arriving at that figure.

Simply remember in accounting for this department, or for this particular transaction, that your service cars are a customer of the business and the transaction should be identical with a sale to a customer.

CASH PAID AND EXPENSE RECORD

DATE 191

D E B I T S — C R E D I T S

FORM G 2 MADE BY TALLMAN ROBBINS & COMPANY, CHICAGO — MOTOR WORLD SIMPLIFIED SYSTEM-COPYRIGHTED

	EXPENSE ACCOUNTS				JOBBERS, MFRS. & OTHER ACCOUNTS PAID OFF			CHECK NO.	ALL CASH PAID	ALL OTHER ACCOUNTS AM'T.	PAYABLE TO JOBBERS, MFRS. & OTHERS	
	PARTS & ACCESS. AM'T.	CAR SALES AM'T.	ACCOUNTS	ALL OTHER ACCOUNTS AM'T.	AM'T.	ACCOUNT					AM'T.	TO WHOM PAID OR NAME OF ACCOUNT
A											45 80	Beebe & Co.
B										*	100 00	A. Z. Tire Co.
C										*	425 00	Blank Motor Co.
D		8 75	Demonstrating								8 75	Kenyon Mfg. Co.
E		4 68	" "								4 68	H. B. Horn Co.
F			Furni. & Fix.	105 00							105 00	Hope Machine Co.
						SHOWING TOTAL CREDITS TO ACCOUNTS PAYABLE					689 23	
G					45 80	Beebe & Co.		225	44 88	92		Cash Discount
H					8 75	Kenyon Mfg. Co.		226	8 75			
I					4 68	H. B. Horn Co.		227	4 68			
J					105 00	Hope Machine Co.		228	105 00			
			SHOWING TOTAL DEBITS TO ACCOUNTS PAYABLE		164 23							
											689 23	Credits
											164 23	Debits
								ACCOUNTS PAYABLE BALANCE			525 00	
											100 00	A. Z. Tire Co.
											425 00	Blank Motor Co.
											525 00	

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THE LAW

As it applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions.
Always send copies of contracts, notes, etc., to which you refer.

By George F. Kaiser

Exempt from Taxes

Editor Motor World: Would be pleased to have your opinion on what I had better do in regard to taxes assessed on sixteen motor cars which I had April 1, 1916, which I sold and reported to the Board of Review when it met in June.

I told the board that I had sold and delivered most of the cars before May 1 and the rest before May 15. As all the licenses had been taken out the taxes were paid, and I wished these cars taken from the roll to avoid any further trouble.

However, they were left on the tax roll and I intend to pay by protest. Do you think I will be able to recover and how?—George Burke, Frederic, Mich.

If all the cars have been licensed as you say and the taxes have been paid, I do not see why they are not exempt from further taxation under the Michigan laws. If you pay under protest, I think you will be able to get back any amount you may have to pay but, of course, you will have to retain a local attorney to handle the matter for you.

Defective Floor

Editor Motor World: We have just about completed our new garage at Montevideo but when the contractor laid the concrete floor he did a very poor job.

The floor was left very rough and it is cracked in several or lots of places.

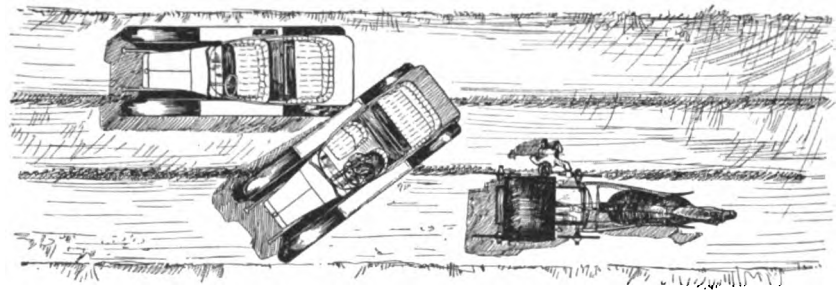
In some places it was allowed to dry out too fast and those places will roll out under a person's shoes.

What can we do with contractor in this case when our contracts called for first class work?

He also put on a leaky roof and this let the water run down over the plastered walls making them black. What can be done in this case?—P. E. Bonde & Son, Montevideo, Minn.

What can be done in a case like this depends to a great extent on whether or not the contractor's bill has been paid and what the contract provided in the first place. If the bill has been paid the only thing that can be done is to sue for the amount of loss you sustained by reason of the defective work.

If the bill has not been paid you can refuse to pay it and when the contractor sues you for the amount which he claims is due him you can set up the amount of damage which you claim by reason of the fact that the work was improperly done and if you prove your case the court will allow you to deduct that amount from the contractor's bill.



Question of Power

The Supreme Court of Washington says that if a man owning an engine makes an agreement with a manufacturer to fit his engine on a cast frame which is attached to a pinion shaft with cut gears, to provide two speeds on drums, etc., if the agreement does not guarantee that the engine will have power enough to drive the drums at such speeds and the apparatus which the manufacturer is to furnish has no power or motion in itself whatsoever, the engine owner cannot escape liability for the price on the claim that the engine when mounted would not develop the power necessary to do the work, if there is no defect in the hoist and drums furnished by the motor works nor in the adjustment of the engine.—Mianus vs. Vollans, 162 Pacific 49.

Who Is Responsible

(*See illustration above.*)

Editor Motor World: A man driving his car (No. 1) along a country dirt road having two well worn and defined wheel tracks, stops his car and engine to talk with a man driving a horse and buggy, and whom he has just met and passed. The car (No. 1) occupies one-half of the track, or road, his two left-hand wheels being in the right-hand wheel track.

A car (No. 2) following his, and going in same direction, has to get out of the road to pass him, and in doing so strikes a wet, slippery, rutty space in the left-hand wheel track, causing his car (No. 2) to skid, and the right-hand wheel strikes the mud guard over No. 1 car's left hind wheel and bends the mud guard, damaging it.

Who should stand this damage, and who was to blame? In a perfectly friendly manner No. 1 claims he gave up half of the road and equally so No. 2 says he should have gotten entirely out, so long as he had stopped his engine, and had settled down for a visit.—Wm. Foote, Fillmore, N. Y.

The mere fact that the driver of car No. 1 brought his vehicle to a standstill on a country road and allowed it to extend over the center of the roadbed while he conversed with a friend would not make him responsible for any damages caused by another car in passing.

If the driver of the second car said, as he contends he did, that the first car was well out beyond the center of the road he should not have attempted to pass, but should have stopped his vehicle and blown his horn as a signal for the standing car to pull up closer to the side.

Because the driver of the second car failed to do this, he is responsible for damages sustained by his own car through the collision, and is likewise responsible for the damages sustained by the other motor car which had been brought to a stand still. A good rule to follow in a case like the above is not to attempt to pass unless certain it can be safely done.

IMPORTANT

Always send copies of all contracts, etc., to which you refer.—Editor.

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The twenty-ninth in a series showing

Dealers Who Have Made Good

JOHN WHEELER LEAVITT, president of J. W. Leavitt & Co., San Francisco, Oakland, Los Angeles and San Diego, was born in Chelsea, Mass., in 1868.

At an early age he moved to Cleveland. At fifteen he went into a machine shop as an apprentice and became a journeyman machinist at eighteen. Those who knew him in those days say he was one of the best machinists to be found in the country. He decided that instead of making machinery he would sell it, and, giving away his machinist's tools, he went to California.

Oct. 1, 1894, with a capital of $3,000, he started in the bicycle business; under the name of Leavitt & Bill, the firm built up the largest bicycle business west of Chicago. With the $3,000 capital the profits for the first year were $13,000.

In 1904 Leavitt graduated from the bicycle business to the automobile industry. Leavitt & Bill entered the automobile field, handling the single-cylinder Knox in San Francisco until they took on the Maxwell when it came out, and in 1905 they took on the Reo.

In 1906 Leavitt bought out his partner and changed the firm name to J. W. Leavitt & Co., taking into the corporation A. D. Plughoff and W. J. Pedler, who had been with him five years. Both these men remain with the company to-day, one as general manager and the other as assistant general manager.

In 1910 the Leavitt organization took over the Overland line, which was handled until July 1, 1916, at which time the company was bought out by the Overland factory, the deal involving one million dollars.

At that time J. W. Leavitt & Co. had nine places of business, from Spokane, Wash., to San Diego, Cal., with 386 employees and a business of 8000 cars a year. After selling out to the Willys-Overland interests Leavitt held his organization together and soon became interested in the Premier. Lately he expanded the business by securing California, Arizona and Nevada for the Harroun. He is interested in the distribution of the Mitchell and Saxon on the Pacific Coast, but the company's biggest business is the Chevrolet line in San Francisco, Oakland, Los Angeles and San Diego.

The Why:

J. W. Leavitt gives as his secret of success this brief statement: "I attribute the success of J. W. Leavitt & Co. to the fact that we have always endeavored to deliver to our customers what they had a right to expect, and a little more

"Price without quality has no foundation" is a quotation from Leavitt's conversation at the time of the interview for this article. "It's this way," he said. "If I am selling groceries and show you a can of tomatoes bearing a beautiful lithograph of a ripe tomato and tell you that I am selling these cans of tomatoes cheap, say for 5 cents, but when you get home and open a can you find that instead of containing tomatoes that correspond with the label it contains nothing but soured tomato parings which are not fit for use of any kind except to feed to the chickens, they are not cheap. They would not be cheap at 2 cents a can. There is no economy there, because there is no quality. Price without quality has no foundation.



John Wheeler Leavitt

San Francisco

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Queries Answered

WE shall be glad to furnish information to anyone free of charge, but please be careful to give all the facts bearing on the matters you desire information on. All inquiries are answered by mail whether they are published or not, so kindly do not fail to enclose a two-cent stamp and your correct name and address. Please be sure to write plainly.

Be a Manager

and Build Your Business to a Maximum

A Detailed Outline of the Things a Manager-Owner Must Do to Make His Business a Real Success

The Question

EDITOR MOTOR WORLD:—I have butted into the garage biz and I don't know anything about it. Now, the question is whether I should put on overalls, or dress up and be a manager. Any advice you can give me on running the business will be appreciated. The garage is a modern building located in a town of about 5000 and is at the intersection of two state roads. I intend to operate a garage and repair shop and sell accessories, and should like your opinion as to whether I should take the agency for a car—Wellsville Garage, Wellsville, N. Y.

The Answer

We are very pleased to see that you have the right spirit, and consequently there is no reason in the world why you should not make a great success out of your business.

By all means be a manager.

You should leave as much of the detail work as possible to your assistants so that you will be free to work hard at building up the business. Just how far you can extend yourself in this direction at the beginning, of course, depends largely on what you can afford. If the amount of profit is small, it may be that you will have to economize by working with your hands, but as time goes on and your business grows, you should be able to overcome this difficulty until finally you will simply be the brains of the organization and all laborious work will be done by your assistants.

Cleanliness First

The first step is to make your building scrupulously clean inside and outside. Possibly it will be necessary to whitewash the interior. Wash all the windows and have your building shining. Clear away the weeds from the grass plots around your garage and plant grass seed or sod.

Pull Trade with Signs

Erect two garage signs, one for each street, so that you will attract attention of the motorists coming in both directions.

Also, if it is possible, erect large signs 500 ft. from your garage on each of the roads leading to it, stating that there is a garage 500 ft. ahead. This will give the motorist who is running along at good speed a chance to slow down and decide whether he wants any supplies, and will prevent him riding by your establishment before he notices it and has time to make up his mind to stop.

Be systematic. You should get a good accounting system and watch every department of your business carefully so that you know just what profit you are making. That way you will find what is profitable and what is not profitable. You should not try to do business in the dark. We believe that the Motor World's Simplified System of Accounting will meet your needs, but if you know of another which you prefer, there is no reason why you should not use it. The main thing is to get a good accounting system, and at the same time one which is simple and easy to operate.

In addition, you should have a full set of forms for the repairshop, accessory store, etc. We can give you an idea of what these forms should be like if you care to have them.

System Spells Success

You should have a good stock of accessories, and it is advisable for you to set up a store. You have given no idea as to how your building is laid out, but we presume there is a combined store and office in the corner of the building, and this will do very nicely. You should have an attractive accessory display in both windows, and these should be changed at least once a week. Do not make the mistake of trying to place too much in a window, and do your best to have the windows look attractive. The same applies to the interior of the store. The goods in the showcases should be carefully arranged and the shelves should have the goods piled mostly on them. The store should be kept very clean.

Money in Accessories

You will find many ideas which will be of help in merchandising your accessories in Motor World, but in addition, you should keep your eyes open and note how other progressive dealers arrange their stocks and sell their goods; also note carefully how the leading storekeepers in the cities near your town display their goods. You can learn a lot about making your store attractive by watching what other storekeepers are doing.

It is not necessary for you to have an extremely large stock at the outset; probably you will not be able to afford it. But your stock should be as complete as possible so that no matter what a motorist asks for, within reason, you can supply it.

Be careful not to overbuy. It is better to buy too small a quantity than too large.

Anticipate Customer's Wants

Watch the needs of your customers very closely. Every time a car comes into your garage, look it over and note what it needs in the way of accessories and supplies. Possibly there is one tire that is badly worn, and it is often the case that a motorist will appreciate your reminding him about this. Possibly he has been busy and forgotten about it and when you tell him that buying a new tire now may save him a serious delay in the near future, he will appreciate your thoughtfulness and buy it.

In the same way, if the motorist has a car which you know is notoriously hard riding, he is an excellent prospect for a set of shock absorbers.

Car Defects Bring Sales

Likewise the motorist with over-oiled engine is a good prospect for a set of soot-proof spark plugs or non-leakable

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piston rings. Furthermore, if he is having oiling trouble, it stands to reason that very shortly his motor will be carbonized, and it will be necessary to burn out the carbon, and he will be a prospect for your repairshop also.

There are some cars which have carburetors which give poor acceleration, others give too rich a mixture, and so on. By studying the difficulties carefully you will soon find out the weaknesses of each, and in this way be able to increase your sales.

There are many cars which are equipped with horns which do not give full satisfaction, and these owners are often ready to buy a better horn with very little persuasion.

Never Say No

When a customer asks for something you haven't got, tell him you will order it for him, and make sure to have that particular article at the earliest possible moment. Many times it pays to telegraph the order to the jobber so that you can have it within a day. This is real service and the owner appreciates it.

Do not carry cheap accessories. Carry only the best and as a rule you will find that these are the ones which are advertised. The manufacturers of advertised goods have spent thousands and thousands of dollars making a reputation, and consequently they cannot afford to jeopardize it by producing inferior goods.

Sell Advertised Goods

Furthermore, it is easier to sell a customer something that he already knows about than some new thing. It is a mistake to tell a customer that the X spark plug, for example, is just as good as one he asks for and is ready to buy. Advertised goods are usually half sold before the customer comes into your store because he has already read the ad and is at least half convinced, and it only takes a little salesmanship on your part to put the deal through.

Service Always

You should bear in mind that your main business is to give service—not in the ordinary sense of the term, but in its broader sense. Giving service in your accessory department, for example, is having what the customer wants when he wants it, and it also means prompt and courteous attention and thoughtfulness for his needs.

Circular Letters Help

In addition to endeavoring to obtain local trade by personal contact, you could also send letters out every once in a while calling attention to some feature of your business. Suppose, for example, a prominent maker brings out a horn which is much superior to any now on the market. This would be a good occasion to write a letter to all your customers or at least to the ones whom you know were in need of better horns, telling them about this model. You should back up this letter campaign by having a display of the new horn in both of your windows.

Hold Prices Up

Don't cut prices. A reduced price means a false value. Either the article is defective or the dealer who sells it will not stand back of the article the way he should. In other words, if a man sells an article at a reduced price, he cannot afford to give the same broad personal guarantee of satisfaction which you can give when you get the full price. If you have any difficulty in competing with cut price dealers, a little salesmanship should overcome it.



A good building, well located, offers a fine opportunity for upbuilding a business

Keep Trade at Home

You should also be able to convince your customers of the desirability of buying all their goods in their home town and not to go to the larger centers. It is certain that you can supply an owner's needs quicker and more satisfactorily than some distant accessory firm. Furthermore, if there is any difficulty about the ways of adjustment, you are right on the job to make an adjustment, and your local reputation is at stake. This does not hold true for the man further away.

Pulling Transients

You should arrange to have some small signs put on all the roads leading to your garage. It will not be necessary to spend a great deal of money on this work, but you will find that it will pay to spend some in order to get transient trade.

You should be very careful about the placing of these signs so that they will be easily seen. You will find it best to put them at turns in the road, where it is likely that the motorists will slow down and there will be more chance of their seeing them.

When a tourist stops at your garage, be sure to take his license number, and from that obtain his name from the secretary of state. Then write him thanking him for the patronage he has given you and telling him that you hope that he was satisfied in every particular and that you will be pleased to have him come there the next time he is in the vicinity and so on. You will find that this will be a great business getter.

Make Him Remember You

When a tourist calls at your garage you should be able to give him something which he will remember you by, and there is nothing better than a card with a small road map printed on the reverse side showing how to get to towns in the vicinity. This is something that is greatly appreciated by the motorist and incidentally will save you a great deal of time in giving directions to those who have lost their way.

Always be courteous and act as though it was a real pleasure to serve your customer. Try to be fair and strictly honest, and when there is a dispute which may lead to a serious break take the attitude that the customer is right and you are wrong. It will pay.

Sell Your Garage

You can sell your garage space just the same as you can accessories. It is modern, fireproof, light, and, in addition, if you give courteous attention and strive to give an extra fine wash and polish you should have no difficulty in keeping your garage filled, but do not try to fill it by giving low storage rates. Rather make your rates high and convince the owners that your price is worth it. You should never let a car go out of your garage unless the radiator is filled and the tires inflated. This is something that your floorman can do in his spare moments, and it is something that owners will greatly appreciate. An owner would rather pay a little bit more per month and have this service.

Above all, your shop should be clean and neat. Make provisions for hanging all tools on the wall above the bench. Keep things off the floor.

High-priced Mechanics Best

Do not make the mistake of trying to get along with cheap mechanics. Hire the best you can get, pay them what they are worth and charge accordingly. Even if your rates are 10 or 20 cents higher than anybody else in town, the difference is more than worth it, and it will not be hard to convince an owner of this fact, particularly if he had a good deal of trouble with his car the last time he received it from the repairshop. It is difficult enough for even the best mechanic to give satisfaction working on all makes of cars.

It costs the owner less when you have better men. It is safe to assume that a good mechanic can work faster than a slow one, and if the owner is paying by the hour it is quite likely that his total bill will not be any more than if a much cheaper man worked on it inasmuch as the good man will complete the job in less time. So the advantage of having the work done by a better man is one that really costs the owner nothing. (*Continued on page 22.*)

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GARAGES
SHOWROOMS
REPAIRSHOPS

SCIENTIFIC CONSTRUCTION

By Harold F. Blanchard

The Garage Beautiful Patterned After Overland Branch

Editor Motor World: In accordance with your suggestion, I am enclosing sketch showing size of lot and its location on block, on which we propose to build a two-story garage and showroom which will be the Garage Beautiful. I am also showing my ideas of a showroom, offices and accessory on an inclosed sketch. Showroom to be 40 ft. deep. Office and lounge (for patrons) 20 ft. deep. Service garage on first floor for 8 or 9 cars; balance of space arranged in stalls for renting. General repair and vulcanizing department on second floor over showroom 40 ft. deep; balance of space in stalls. Second floor reached by ramp from side street as indicated by dotted line on sketch. Stockroom for repair parts and supplies in basement under showroom. Accessory and repair parts storage under office floor.

As entrance to garage will be on side street, we would like if possible a front planned after the N. Y. Overland's new building.—Subscriber.

Answer—It would be more convenient to have the offices and showroom on the same level, notwithstanding the fact that the arrangement you suggest might add to the appearance.

The only suitable position for the ramp is at the rear as shown and as the turning space at the top is limited it is desirable to install a turntable; this is one of the very few instances when a turntable is of use.

A dumbwaiter runs from the basement to the second story thus conveniently connecting the shop on the second floor with the parts room in the basement. Accessories may be handled in showcases and one shelves grouped in one corner of the showroom.

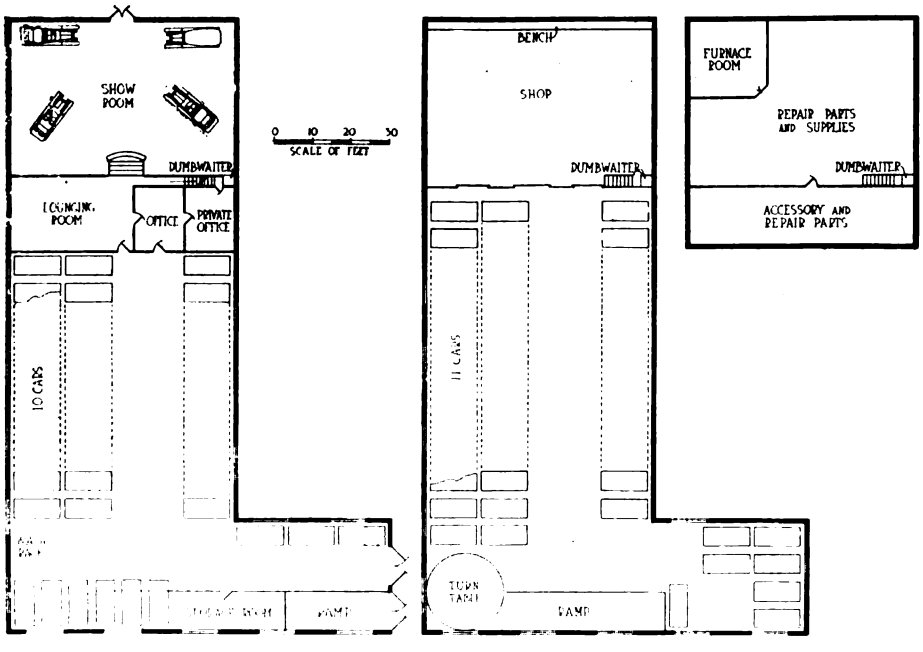
The other details of the plan should be perfectly clear but we shall be glad to answer any questions concerning it.

FREE SERVICE!

We shall be glad to draw plans or answer any question regarding building or altering—but be sure to send full details. There is no charge.



The front is a small edition of the Overland branch showroom in New York



Two story and basement building with ramp to second floor

Be a Manager

(*Continued from page* 21.)

Have your shop equipment as complete as possible. We would suggest that you get a copy of the Motor World Short Cut Book and read it through thoughtfully. You will find many simple devices there which will save you a lot of time and enable you to turn out better work. At the same time do not make the mistake of building a lot of equipment which you will not use often enough to pay you for the time it took making it.

Promptness Pays

Be prompt. If you promise a man that you will have his car finished by a certain time, you should have it done by this time. It is much better to promise a thing a little later than to promise it earlier and fall down. If you do not know when you can finish a certain job, say so. Do not make a promise that you are sure you cannot keep.

If you do make a promise which you feel certain you can fulfill, and then some unusual circumstance such as unexpected illness of your two best mechanics or something of the sort arises, do not wait for your customer to come and then disappoint him, but call him up on the 'phone and tell him of your difficulties.

There are times in the year when the work in the repairshop will slacken up, and you should forestall this by sending out letters to your customers urging them to send in their cars NOW rather than wait until sometime in the distant future when your repairshop will be crowded.

Keep a careful record of everything. Be especially careful that an owner is charged only for the time that the mechanic works on this car and that no mistakes are made in recording his time.

There is no reason why your shop should not be the best in town or the best in that section, and you should make it a point to sell the advantages of your shop over other shops in the same way that you might sell an accessory or a car. When you have your shop in good running order, make a list of all the talking points and then get busy. You will find that you will have more than you know what to do with.

You should make it a point to become well acquainted with your customers. The first time a man stops learn his name if possible so that next time he comes you can greet him by name. And every time he comes try to talk to him, if only for a moment, because you will

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often find out that he needs certain accessories or that he requires repair work. At the same time you can find out how the last repair job turned out and how the accessories he bought in the past are standing up. It is very important to know all these things.

You should make a full collection of instruction and part books. These may be obtained from the different automobile manufacturers merely by asking for them. You will find many things in the instruction books which will aid you when repairing cars. The wiring diagrams will be an immense help in locating electric troubles, and there are blueprints and sections of motors and other parts which will aid you in taking things apart. They will shorten your work. Also there is information on adjustments which can only be obtained by experience otherwise, and even then it is quicker and better to obtain it from a book. Do not get the idea that the only kind of learning is practical experience.

By all means you should take the agency for some car, but be sure that it is a sound proposition, provided of course you can find the money to finance this department of your business, but before you do this be sure you have your business in perfect running order. Do not try to attempt too much at the start, but perfect all the details of the other departments of your business before you attempt to sell cars.

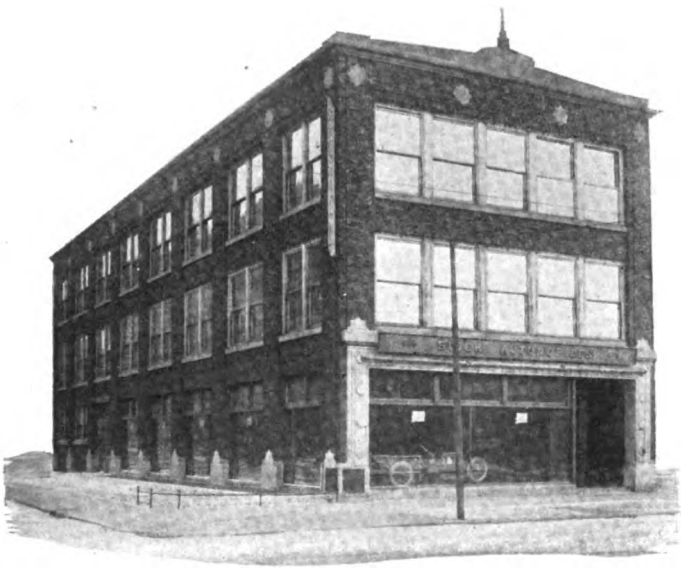
In conclusion, we would strongly advise you to obtain a copy of the April 26 issue of Motor World, as this contains a great many hints on obtaining summer business; also get a copy of our winter business number Oct. 11, which gives many ideas for getting business. While most of these ideas are primarily for winter, you will find that the majority of them may be used all year around with very little modification.

In addition we would strongly advise you to obtain as many back copies of Motor World as you can and read them religiously. We should advise you to write our circulation department asking them to send you as many back copies as they have for the past year and charge these against your subscription.

This may seem like a long letter to you, but we want to impress you with the fact that it is only a starter. This letter will give you a general idea of how you are to proceed, and we shall expect you to write us as frequently as you care to for further advice on various questions which come up. You are at liberty to write as often and at as great length as you like.

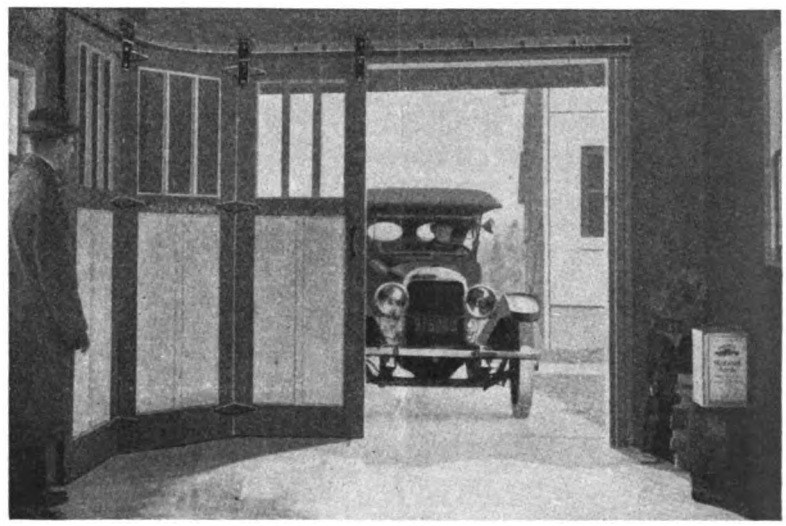
In any case, we shall expect to hear from you from time to time just to know how you are getting along.

INDIANAPOLIS BUICK BRANCH



This is the Indianapolis branch of the Buick Motor Co. The salesroom and garage are on the first floor, the offices and stockroom on the second floor, and the repairshop on the third floor

LOUDEN GARAGE DOOR



A sliding door made in three pieces hinged together and suspended on ball swiveled roller bearing trolleys operating on a steel track, so that it can swing around a sharp corner and lie flat against the wall. It is easy to operate and can not be blown shut by the wind. One section can be used for a pedestrian door.—Louden Mach. Co., Fairfield, Ia.



Albright Garage, Sacramento, Cal., is a plain but very neat one-story building recently completed. The business includes general garage and repair work and truck sales

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Repairshop Shortcuts

From The Motor World Roadman

(No. 1104) PORTABLE OIL GUN

Steam engine oil may be readily carried and delivered to the rear axle or transmission by this portable oil gun. It is made of junk parts throughout, at a total cost of 35 cents. The retainer is an old Ford gasoline tank. The pump is an old hand tire pump, and is joined to the tank and hose through ordinary check valves. A pipe nipple and valve at the hose end facilitate delivery and prevent waste. Both tank and pump are mounted on a board on castors.—La Verne Avery, Auburn Service Station, Omaha, Neb.

(No. 1105) VALVE TOOL

An excellent valve tool for the Ford may be made from an old brake rod yoke end, and a 1/3 in. steel bar. The bar is flatted and notched at one end, that it may be caught beneath the valve washer. The shank is squared up, and fitted into the yoke end in the manner shown. With this tool the valve may be readily lifted, and the lock pin removed or replaced without difficulty.—Central Auto Service, St. Louis, Mo.

(No. 1106) DURABLE CREEPER

This creeper is easily made, and strong enough to permit a car to run over it without injury to the creeper. The cross strips are 2 x ½ in. steel and bent slightly to give clearance for the castors and yet keep the body of the creeper low. The slats are 4 x ¾ in. hardwood and are bolted to the cross strips. A board at one end offers a head rest. The casters are of the swiveled type, so that the creeper may be pushed in any direction, and are bolted to the metal strips.—Marrion Williams, Warren M. Shallcross Garage (Hupmobile), Louisville, Ky.

(No. 1107) TILTING CAR RACK

In cases that it is impossible to construct a pit, the tilting rack illustrated provides a desirable substitute. Two boards, about 13 ft. long, and measuring 6 x 2 in., are mounted on pivoted rests raised about 2 ft. from the floor. The ends of these boards are then tied together by steel cross strips, and sideboards nailed on the outside to prevent the car from running off. Due to the fact that the grade of the rack is too great to permit a car to run onto it when tilted a geared hoist with ratchets is necessary to raise the car. The rack is then tilted, and blocked in a horizontal position, permitting any work to be readily done on the under side.—Longest Brothers Co., Louisville, Ky.

(No. 1108) SPRING AND AXLE RACK

Economy of space is effected by the use of this spring and axle rack. A triangular wooden framework ends carry spikes that hold the springs where they may readily be seen, and the axles are placed on cross-rods connecting the wooden pieces. By having several of these cross-rods, several models of axles may be stored, and easily removed. The cost of this rack was $4.50.—John Rommel-Overland-Louisville Co., Louisville, Ky.

(No. 1109) FORD REAR AXLE STAND

Rear axle repair is facilitated by the use of a proper rear axle stand. The stand illustrated may be easily made, and leaves all parts of the axle accessible when in use. It is channel iron through, each upright laid out at a point of an L on the floor as shown. One-half of the rear axle housing passes through, and is held by two of these uprights, the other upright holding the torque tube. A steel crosspiece is riveted to this latter upright, serving as a rest for the radius rods. —Universal Motor Co., Ford Service, Omaha.

(No. 1110) SELF-OPENING DOOR

A self-opening repairshop door is shown. The door is of the sliding type, hung on a horizontal track, but counterbalanced with weights swung over a pulley so that it automatically opens when the catch is released. This catch is of the hook type, and connected with a hinged board placed across the roadway, the car itself releasing the catch and allowing the door to open. One of these hinged doors is placed both on the inside and the outside of the door, so that one entering or leaving has only to get out of the car once.—Longest Brothers Co., Louisville, Ky.

(No. 1111) OXYGEN TANK STAND

A durable and portable stand for carrying the oxygen tank of a carbon burning outfit is illustrated. The base is wood, X-shaped and bolted together. Four steel uprights hold a ring in which the tank is held, and a tin match box on the side of the ring holds the necessary matches. The tank is prevented from slipping by another ring bolted to the base, and the base is mounted on casters.—Marrion Williams, Warren M. Shallcross Co. (Hupmobile), Louisville, Ky.

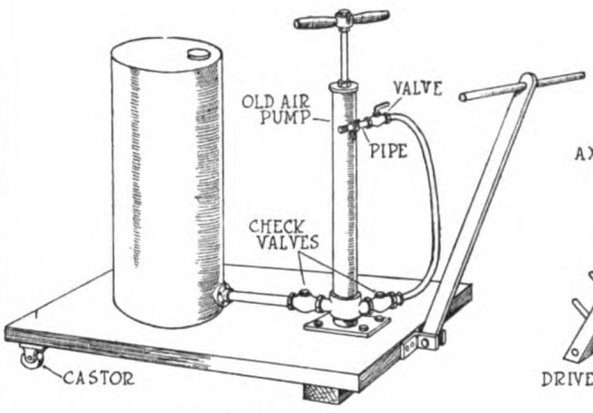
(No. 1112) HOME-MADE ARBOR PRESS

This arbor press is made of channel sections from an old truck frame, though one could readily be made from any channel section. It comprises an inverted U-shaped member, supported in an upright position on the channel base as shown. The overall height is about 5½ ft. and the width 4 ft. The pressure screw is carried on two large nuts that are old clutch flanges tapped out, both the screw and the nuts having square threads. An old flywheel, keyed to the lower end of the pressure screw serves as a hand wheel, and is provided with vertical pins so that a pinch bar may be used to increase the leverage. — Longest Brothers Co., Louisville, Ky.

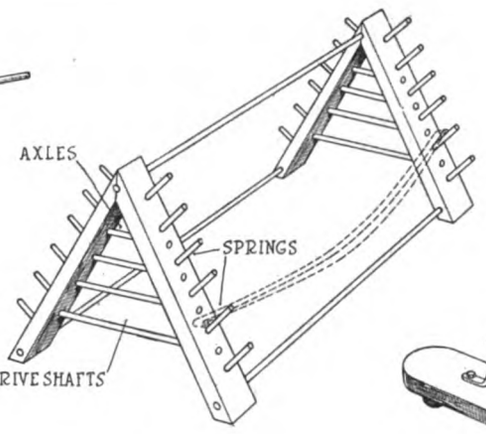
(No. 1113) AUXILIARY JACK

Auxiliary jacks are a necessity in the repairshop to hold cars up while wheels or axles are removed. Two satisfactory auxiliary jacks may be made from one old Ford rear axle housing. The housing is taken apart, and each tube cut off at the desired length. The cut off end is then heated, and pounded shut, forming a groove that holds the car securely in place.—Universal Motor Co., Ford Service, Omaha.

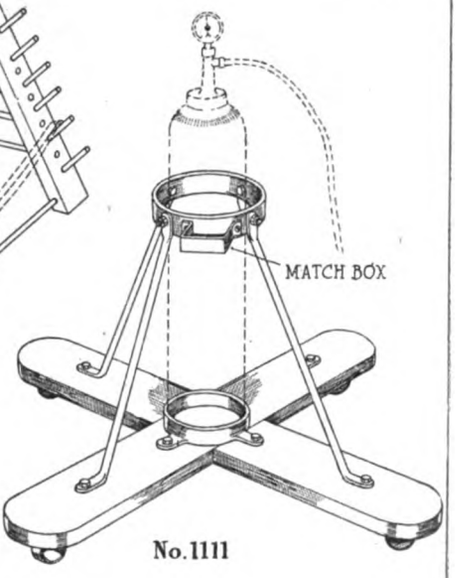
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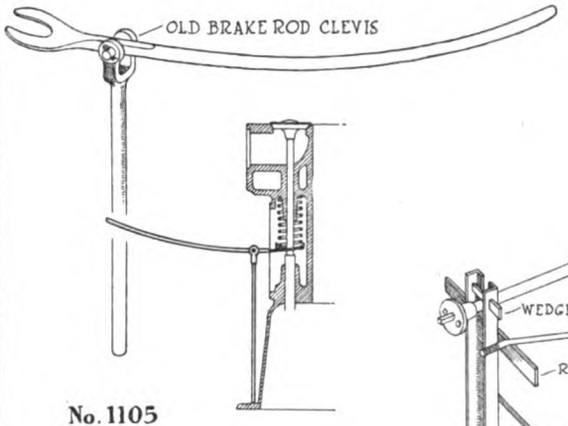
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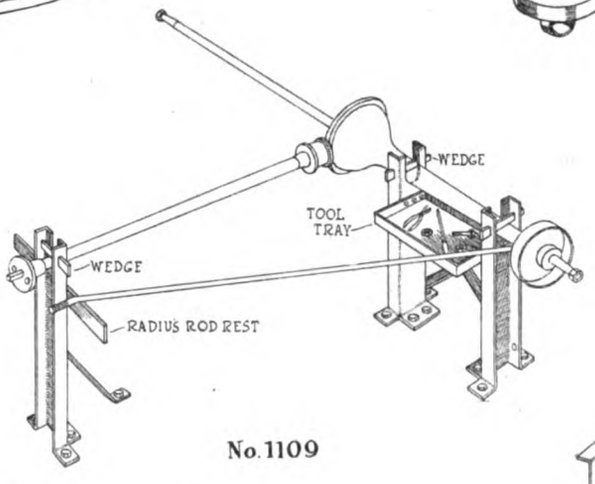
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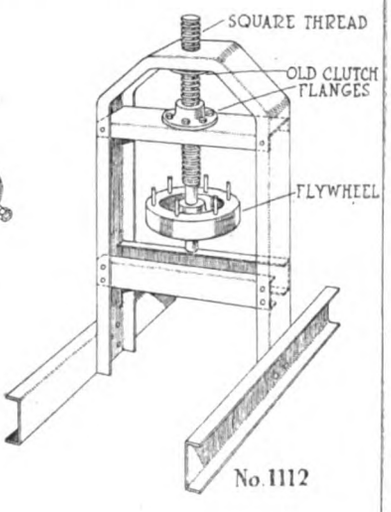
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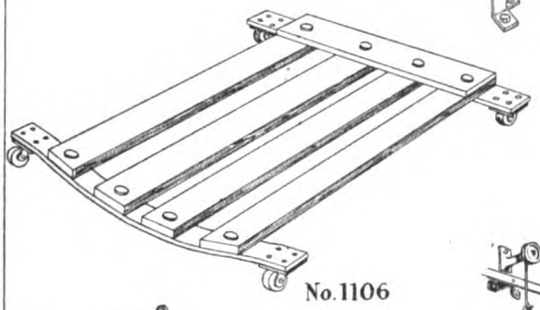
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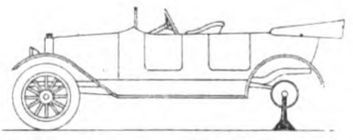
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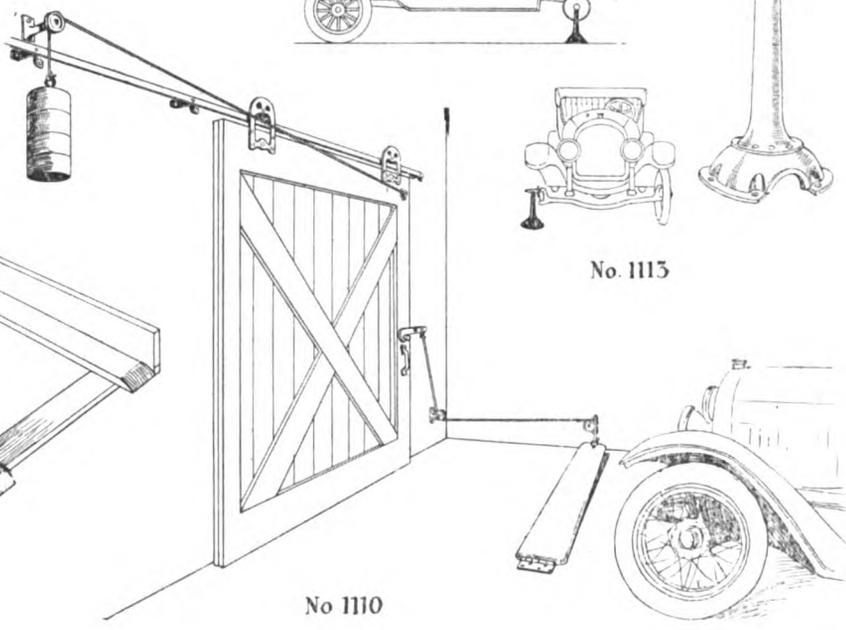


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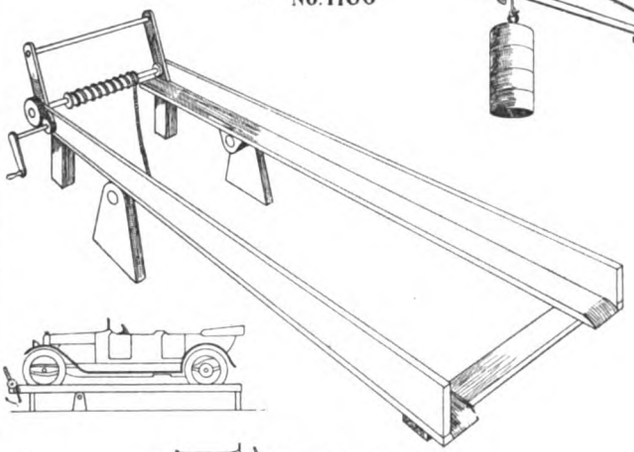


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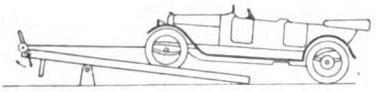


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BATTERY DEPARTMENT SERVICE RULES

All charges for repairs, Recharges and Rental Batteries } **Strictly Cash**

Price for charging, starting and lighting batteries, $1.

Renters suitable for starting purposes furnished at 25c per day, and a deposit will be required to cover the value of all renter batteries supplied.

Starter renters will not be installed until generating system on car has been tested and we are assured that battery will receive proper charge while car is in use.

Unless special arrangements have been made for storage batteries left over 30 days they will become our property and will be junked without recourse.

E. S. Cowie Electric Co.

This is the sign that hangs in the Cowie salesroom

SERVICE FOR STORAGE BATTERY USERS

System Saves Batteries Where Guesswork Lost Them

"ANY man who has the price to pay for service is entitled to it." This sentence in a letter from Sales Manager Norberg, of the Willard Storage Battery Co., to E. S. Cowie, of the E. S. Cowie Electric Co., Kansas City, started Cowie on a new line of thinking with reference to his battery service in Kansas City.

As a result he revolutionized his service, so that those who were willing to pay for it can get it. Distinctive features of the new deal are the strictly cash basis, deposits for rental starters, and higher charge for renters.

The Cowie company had been renting starters at 10 cents a day, without requiring any deposit—and without any particular effort to give service. The people who rented the starters were in the same position as those who buy used cars—if the starters didn't work, they had no recourse but to return the battery and pay the rent. There was no guarantee of service. There was, however, a lot of complaint.

The company, of course, kept its batteries for rental purposes in good condition; usually the reason for failure of service was in the generating system, or elsewhere, the fault of the person who rented.

There was another source of trouble, even more serious, in direct loss, than the dissatisfaction of the renters. This was the loss of batteries. Many of the persons who took out starters never came back with them.

150 Batteries Lost in 7 Months

In seven months 150 batteries were lost.

Under that old system, first come were first served. The first comers were usually transfer or jitney men, who got to work early; they were poor credit risks—and did not bring much business otherwise to the company. But the batteries let out to them exhausted the supply, so that there were none for the good customers when they came in.

So there was dissatisfaction not only among those who got batteries, but dissatisfaction among those who did not get batteries—and the latter class were particularly the people that the company wished to take care of.

When Cowie decided to change his system he devoted a whole month to going over all the starter equipment in the shop, putting it in first class condition and scrapping the inefficient. Then he bought 50 new batteries. And he was prepared to guarantee service.

He established a new rate for renters, advancing the rate from 10 cents a day to 25 cents. Then he made a rule that a deposit must be left, check or cash, on each battery taken out. The flat rate was $10 on an old battery, $15 on one of the new ones; but there was no restriction on what the customer might get—if he paid for it. Sometimes customers make deposits as high as $43 on a battery, if the equipment they want warrants such a charge.

With this higher rental rate, and the requirement of a deposit, there was a guarantee of service. If the battery doesn't work, the company will make it work.

Naturally, the company has to have some assurance that the rest of the equipment isn't going to queer the starter; so it requires that a test be made of the generating system. If this test shows that the generating system

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will not properly charge the battery, the facts are laid before the customer. There is no charge for the test, and no requirement that repairs be made; any adjustments or repairs of the generating system are subject to special agreement, and are then charged for.

The beneficial results of the new system were evident at once. In 24 hours the losses were choked off—where. in seven months previously, 150 batteries had been lost, the batteries were all coming back now, or the money was in the till to pay for them. The class of customers that was hazardous had been eliminated, and the class that was profitable was being cared for.

"We figured that we were under obligations to those who had bought cars in the last year or two, and these are now getting service when they want it," says Cowie.

"About one out of ten of our good customers objected to the deposit plan. They declared that they could buy us out. Usually they could, but that didn't make any difference to us—they weren't going to. Even they usually came across when the business-like aspect of the system was explained. The large majority, however, responded that this was the only sensible way to do business."

Naturally the first answer of a customer unfamiliar with the deposit plan was that he hadn't the cash with him.

He was offered a blank check.

The second answer was that he never wrote a check away from the office—he might fail to enter it on the stub.

Cowie met that with a special form of blank check, which had a detachable stub for the recording of the item, which the customer could take back to his office with him.

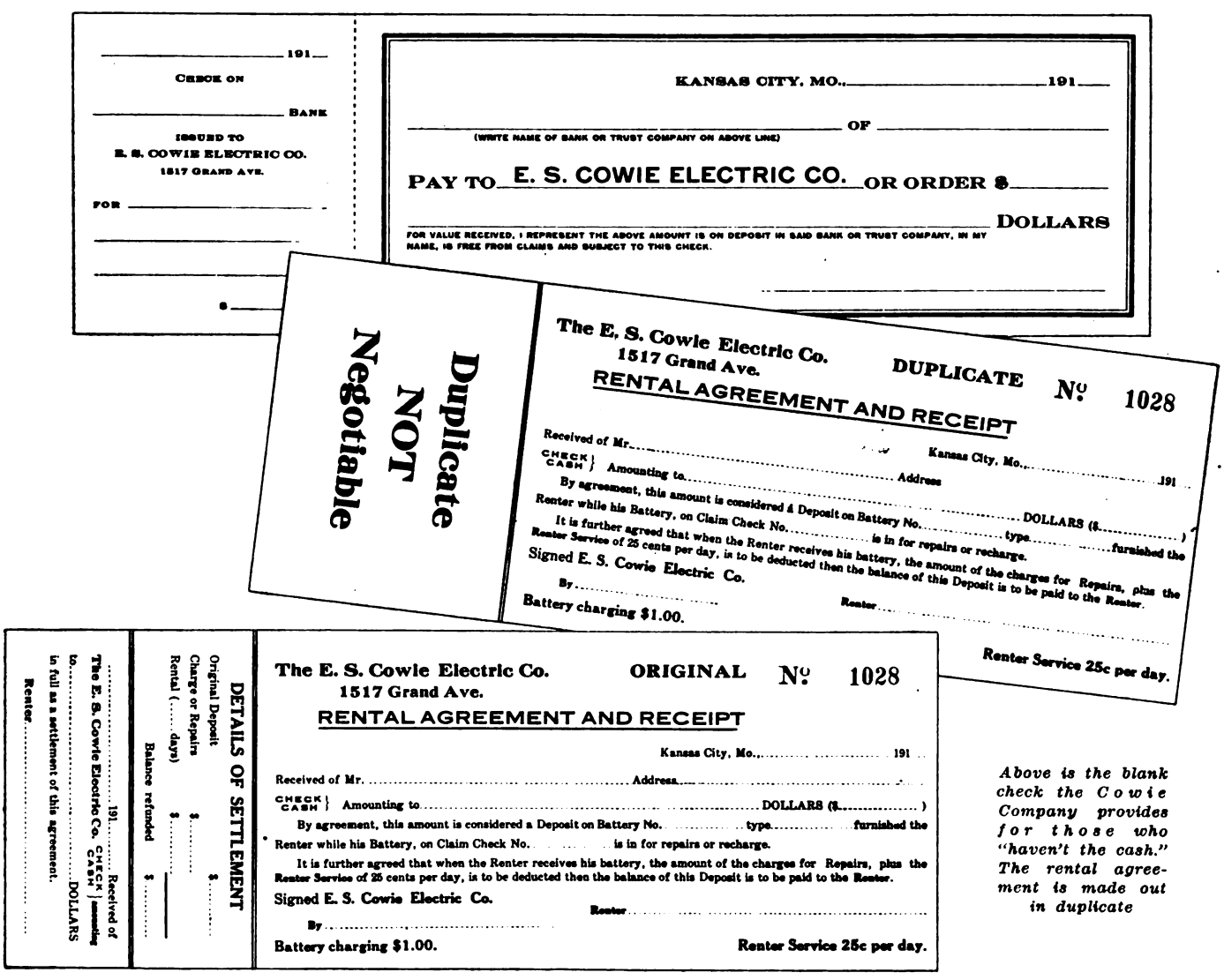
A special form of rental agreement was prepared, which, being in duplicate, was a receipt to the customer as well as a record for the company. The body of the agreement recited the details of the transaction; the amount deposited, whether check or cash; the number and type of the battery rented; the repair tag or claim check number of the battery left for repair or recharge; the statement that the cost of repairs, and the rental at 25 cents a day, would be deducted from the deposit.

The duplicate, bearing these notations, was given to the customer. The original, retained by the company, bore a stub on which details of the final settlement, the charge for repairs and for charging, the rental, and the balance refunded, were entered. This stub also bore the receipt from the customer for the refund.

On the wall of the office, in front of the customers seeking battery service, is a sign printed in large letters, as shown herewith.

Dort Selling Race

DETROIT, March 17 — George W. Franklin, Dort distributer, has started a 180-day selling race for his salesmen. Each man gets one point for every $100 worth of business and 50 points give him a lap of the track or line mile. The winner will receive a trip to Buffalo by boat, Albany by rail, and down the Hudson by boat to New York with all expenses paid. The runner up will be loaned a car and given a trip to a summer resort with all expenses paid. The Dort Motor Car Co., Flint, will give $65 to the winner and $35 to the salesman finishing second, in gold, and also the loaning of the car.



Above is the blank check the Cowie Company provides for those who "haven't the cash." The rental agreement is made out in duplicate

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Editorial Observation

Wanted—National Organization

THE temporarily averted railroad strike should bring home to dealers the need for national organization; it should burn this thought into their souls.

Here was a great national crisis with nobody back of the helm of the dealers' trade ship to steer it through troubled waters.

What would the biggest distributers and the littlest dealers do if the strike were on? Many would go out of business, some of them in 2 weeks, practically all of them in 1 month for lack of cars.

A national dealers' organization should have this situation in hand. It should have accurate knowledge of the condition of affairs in every city.

It should have its plans laid for emergency measures which might be taken to avert a possible total tie-up in the trade. Possible shipping routes should be classified, road information should be available. In short it should have available, and it should put instantly into the hands of the dealers of the country a great mass of information which would literally lift them out of this difficulty.

With the railroads out of operation dealers near the factories would get plenty of cars by driving them away and dealers at a distance would get none. The national dealers' association might step in here and through its influence and its knowledge of conditions, roads and possible transportation methods insure such equitable distribution as the crisis would warrant.

The motor car trade to-day is one of the greatest businesses in the country. To-day there are over three and one-half million cars in use. Yet there is no big, strong association which can look to the interests of this great trade in a crisis such as the industry is facing now.

The trade must have national organization which will be national in name and thought and deed. Until it has that organization its members must struggle along as best they can, pitting their puny efforts against overwhelming odds.

The necessity for such a national dealer organization is not confined to solving such problems as are presented by this strike. There are hundreds of other matters upon which it should have tabulated data and information.

The handling of used cars presents an excellent opportunity for the work of such a body; the matter of dealers losing their contracts apparently without reason is another.

These are all things that are vital to the dealer. They are national in importance. They require the help and the inspiration of a national trade association.

Without such an organization the dealers of the country are 50,000 individuals. Organized, they are a power that can accomplish anything.

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THIS BRINGS SPRING BUSINESS

EDITOR MOTOR WORLD—I herewith submit copy of a form I have adopted in securing my spring business from those that cannot bring their cars in until roads are passable. I write them a nice letter asking them if there is anything to be done to their cars before taking them out, and I suggest several little things that can be done to any car in the spring which any mechanic can do.

I enclose with the letter a blank form like sample herewith for their application, and I also send a self-addressed envelope with stamp for their reply.

I explain my reason for doing it this way: that I will know just what to expect in the spring and can prepare and give prompt service, and to all those that will send in their applications will be served, in preference to those that did not make application but come unprepared. Even though they are first, they must wait, as those that have applications will be taken care of first by their numbers as received. I have found this has paid me well and has got work that I would not have got otherwise.—P. J. Thue, Cannon Falls, Minn.

Cannon Falls, Minn.,
February ...., 1917.

P. J. Thue, Cannon Falls, Minn.:

I hereby submit my application to list my automobile, a Studebaker, No. ....., Model 35A, License No. ....., with you for repairs during early spring, 1917. My car will be delivered to your shops as soon as the roads permit.

(Signed) .....

WINTER SALES CONTESTS

EDITOR MOTOR WORLD—I would be pleased to have you mail me copy of your magazine reporting the Detroit automobile show. Also copy of number that came out a few weeks ago in which Mr. Reiley calls attention to the salesmen smoking cigarettes on the sales floor. I am using these illustrations to ginger up my sales force and believe they have a good effect, as they call a salesman's attention to his shortcomings more vividly than you can express it at a salesmen's meeting.

I have been very much interested in your winter business department tips and wish to state that we have enjoyed a very wonderful business this winter. During the month of February we put over forty-two sales, which is excellent for such a month as February.

I have been running sales contests right through the winter the same as the summer months, offering prizes, and find that the boys have been on the job every minute instead of sitting around waiting for the warm days to come. The week before the Detroit show we sold eleven cars. Other years we did not expect to sell any cars the week before the show, and therefore were surprised that we received any orders at all.

I find the greatest trouble with the average salesmen is the fact that they are inclined to wait for the warm days to come, thinking that during the stormy weather there is no business, and if you can get this idea out of their heads and put the right amount of ginger behind them you will find that they can make mighty good money during the winter months, and this winter has been a revelation to me, and I heartily congratulate you on the efforts you have put forth to call the different dealers' attention to this fact.—George W. Franklin Company, T. H. Walker, Sales Manager, Detroit.

Letters From MOTOR WORLD Readers

HOW TO RUN A GARAGE

Editor Motor World: As no one has commented on my letter in MOTOR WORLD, Feb. 21, I shall write a new one. I wish to express some ideas I have about how to run a first-class garage.

I received some offers after my last letter appeared, and wish to warn any who might make me offers this time, that I cannot move my family for less than a $25 per week offer.

I stated in my previous letter that a good, first-class mechanic, who was modest, would be offered 40 cents or nothing. Since that letter appeared I have had several offers, though none stating wages.

I asked $25 per week and have had no reply. They evidently thought me too high. I want to ask any manager who thinks that wage too high, "Would you come and work for me for less?"

I am willing to gamble one month's wages I can run your business as well or better than you are doing now. I have studied this business from A to Z. Am still studying—expect to keep on studying as long as I live.

Need Road Signs

I find most garages have few if any well-kept road signs. Where I am now employed, there is a stack of signs that have laid around for 2 years. I have offered to help put them up, on my own time; made offer first year, last year and they are still in shop. Only time show windows are decorated is when I do it on my own time at night.

Where I was located previous to coming here I worked for three garages, and trade followed me wherever I went. Customers demanded that I do the work on their cars. Is such a man not cheap at $25 a week? I have fought for tools only to be told, "We've got along without 'em this long and none of the other garages have as much as we have."

Wherever I have worked customers tell me, "I'd rather have a $1 an hour man work on my car than a 40 cent one. I don't mind paying a stiff price if I know my work is done right; but I hate to have to pay a fair price and get botched work. Not only that, but have it done over two or three times and pay every time. That costs more in the end, to say nothing of the delay and inconvenience." Now tell me, "Is or is not a $25 per man cheap when his work always stays *put?*"

My idea is—one $15 man—to change tires, sweep, vulcanize, fill grease cups, trans., diff., put oil in engine, fill gasoline tanks, etc. Charge customers for his time 40 cents per hour.

One man at $20—to grind valves, scrape carbon, dismantle trans., diff., take up bearings, etc., general repair work. Charge for his time 65 cents per hour.

One man at $25—bearing scraping, radiator work, carbureter man, trouble shooter, overhauling electrical systems, etc. A top-notch man. Charge for his time 80 cents per hour.

One foreman at $27.50 to $30—a good mixer, a good manager, a man of unqualified ability, honest, tactful and a hustler. Charge for his time $1 an hour.

If more men are needed have one at $18, charging 55 cents per hour, and one at $22.50, charging 75c per hour.

Let your slogan be: "WE DO IT RIGHT THE FIRST TIME."

Save Time and Money

If you charge 70 cents per hour for repair work, and add sufficient tools so a man can do as much in 6 hours as he formerly did in 9, he is cheap to customers at $1 per hour. Not only do they save money, but time as well.

Instead of painted sign boards, have them made like bill-boards, covered with iron and one-sheet size. Your local printer can get out a line of work that will pull more trade than you ever imagined.

One $15 man, trouble car, brush and can of paste, will cover all boards in a day—once every week, or every other week. Have signs for 5 to 10 miles from garage in all directions. One week bill tires—then call attention to the up-to-date equipment in your repairshop—keep your brain busy and you'll have plenty of stories with which to entertain the motorists as they wheel along watching for new signs and new stories.

Now! if MOTOR WORLD is willing to donate space, surely the readers should be willing to use it. Now get busy—criticize me and my ideas—I'll not get angry, but I will learn something. Let us hear from repairmen, proprietors and customers.

Yours in the interest of Better Business.—C. R. Pierson, in charge Buick Service Dept., Salineville, Ohio.

Top Holders from Michigan

ST. JOSE, MICH., Feb. 21—The Auto Specialty Mfg. Co. plant has started work here with 350 employees and will manufacture Bair-Bow springs, top-holders, malleable iron parts and castings.

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The RETAIL NEWS.

EAST

The E. J. Todd Rubber Co. of Waterbury is to take over the store formerly occupied by the accessory department of the Universal Auto Co. at No. 338 Pearl Street. Tires and accessories will be handled.

The Electric Supply & Equipment Co., 120 Allyn Street, is renovating the quarters formerly occupied by the Keeney Garage and will be in a position to give service on Exide batteries.

Ashwell Service Station, 347 Trumbull Street, Hartford, Conn., is building a four-story brick addition. The first floor is to be used for offices, second for electrical department and manager's office and the two upper stories will be occupied by the Donegan Auto Body & Specialty Co. and the Harrington-Hudson Co.

The B. F. Goodrich Co. has rented a store at No. 43 Allyn Street, and will use it as a Hartford and vicinity branch.

The Hartford Buick Co., Hartford, Conn., is remodeling the recently acquired Park Casino on Elm Street. The front of the building has been torn out, large plate glass windows being put in. When alterations are completed the salesroom now at 356 Main Street will move to the new location.

The Whaley Motor Co., 449 Wethersfield Avenue, Hartford, Conn., will conduct a general garage business, in addition to the sale and repair of Maxwells. The new building has storage space for 50 cars.

The R. D. Britton Co., Allyn and High Streets, Hartford, is making alterations in the building, a larger salesroom and accessory department being fitted up on the ground floor, and the upper story, recently vacated by the Universal Auto Co., is also being remodeled to meet the needs of the company.

The P. J. Durham Co., 761 Park Place, Brooklyn, N. Y., has been appointed official service station for the Westinghouse Electric & Mfg. Co.

George Duval, formerly of the Studebaker factory, has been placed in charge of the service department of the Philadelphia Sales Corp., local distributer at Broad and Callowhill Streets.

H. A. S. Perch was recently appointed sales manager of the Owen Magnetic Co., 1835 Chestnut Street, Philadelphia.

The Swain-Hickman Co., Philadelphia, Republic truck dealer, has moved to 2116-18 Market Street.

George J. Stranahan, Philadelphia, has incorporated the Garage Service Co. for $10,000.

William M. Bartleman, Philadelphia, formerly with the Chalmers Co., has been appointed district manager of the Regal Co.

The Allen Motor Co., Allentown, Hudson dealer, is erecting a garage at Broad Street and Fifth Avenue, Bethlehem. This company has increased its business 150 per cent in the last year.

MIDDLE WEST

The Highland (Wis.) Motor Car Co., F. P. Hennessey, owner, will build a new garage and repair shop, 50x130, to cost $10,000 equipped.

Elmer Erickson, Atlas, Polk County, Wis., is building a garage and repair shop.

The Thom Automobile Co., Oshkosh, Wis., held the formal opening of its new garage, one of the largest in Wisconsin and situated at Jefferson Avenue and Merritt Street, on March 1.

E. G. Kingsford, Iron Mountain, Mich., is having plans prepared for a two-story garage and service station, 125x150, of brick, steel and concrete, to cost $35,000.

Joseph Klein, Waunakee, Wis., will build a $5000 garage.

Frank Howend, architect, 41 Mack Block, Milwaukee, is preparing plans for a garage and salesrooms, the names of the owners and the location being withheld. The building will have 120 ft. front and will be 100 ft. deep, of reinforced concrete, two stories and basement.

Holmes & Co., 495 Broadway, Milwaukee, Ford dealers, have taken possession of their new garage and service station at that location. In celebration of the event, Mr. Holmes gave a banquet to his organization, covers being laid for 35. Among the guests was A. W. L. Gilpin, manager of the Milwaukee branch of the Ford Motor Co.

R. F. Sweet, Grand Rapids, Wis., has opened a repair shop.

Maynard Matteson, Unity, Wis., is installing equipment, including a motor-generator set for storage battery charging.

Rippey & Loos, Hartford, Wis., have broken ground for a new garage and repair shop, to cost about $7500.

F. S. Wiegand, Chippewa Falls, Wis., is contemplating the erection of a public garage and repair shop.

C. H. Lohr, Hartford, Wis., Ford dealer, has incorporated his garage and agency business under the name of Lohr Auto Co., with a capital stock of $15,000.

Loring DeGroff, Delavan, Wis., Mitchell dealer, has taken A. S. Hatch into partnership and the business will be conducted under the name of DeGroff & Hatch.

Ryall's Garage, Ladysmith, Wis., has installed a complete Bosch magneto service station, which is in charge of Thomas Boardman.

Perry Auto Lock Sales Co. of Wisconsin has been organized by W. H. Hill and Robert Daggett, to represent the Perry auto lock and Lakeside internal gear drive truck attachment for Fords. Offices have been opened in Madison.

A. H. Bluemke & Sons Co., Rosendale, Wis., has been incorporated with $35,000 capital stock to succeed to the business of the same name conducted for fifteen years as a general motor car and farm implement agency.

The S. & S. Motor Car Co., Green Bay, on March 1 moved into its new garage and service station at 106-112 East Walnut Street.

The Sheldon Hardware Co., Janesville, Wis., has opened a complete motor car accessory and supply store, with a special tire and repair department.

The Johnson Motor Co., Fond du Lac, Wis., state distributor of the Inter-State, has opened a branch office and display room at 616 Grand Avenue, Milwaukee. F. A. Johnson will divide his time between the Fond du Lac and Milwaukee establishments.

The Overland-Green Bay Co., Green Bay, Wis., northeastern Wisconsin distributor of the Overland-Wisconsin Co., Milwaukee, on March 1 moved its garage, warehouse and service station from temporary quarters on North Adams Street to the new $35,000 building on West Walnut Street. W. W. Calahan is manager.

The Hayward Auto Co., Hayward, Wis., is installing new machinery and tools, operated by electric motors.

Willis Auto Co., Jackson, Mich., will open a new garage.

Miller & Kelm, Horicon, Wis., have dissolved partnership, and the garage and repair shop will be continued by Sam L. Miller. Kelm has accepted a position as traveling service representative of the Kissel Motor Car Co., Hartford, Wis.

Macomb Motor Car Co., Mt. Clemens, Mich., has been organized to handle the Overland. The company has contracted for the delivery of 150 cars and has established sub-agents in Macomb and St. Clair County.

The Columbus branch of the United States Tire Co., Columbus, O., formerly located at 89 North Third Street, has moved to 86 North Fourth Street.

C. N. Bown Motor Sales Co., Columbus, O., is the name of a new concern to deal in Lexingtons and McFarlans in central Ohio.

The Aurora, Ill., Motor Car Co. has been organized by C. H. Solfisburg of Aurora and J. E. McDowell of Chicago. A sales agency and garage have been opened on South La Salle Street. The company will be Overland distributor in Kane County.

The Frank L. Kiep and Kahn Automobile Co., Joliet, Ill., has been incorporated with capital stock of $6,000 by F. L. Kiep, M. E. Kahn and H. E. Marcus to operate a garage and conduct a sales agency.

F. M. Washburn, Morris, Ill., will erect a modern garage, which will be occupied by the Morris Motor Co., now located in Primrose Place.

R. E. Bishop, Hayworth, Ill., will erect an addition, which will double his floor space.

S. W. Babb, Jacksonville, Ill., has moved his sales agency and service station from East State Street to a new garage on North Main Street, larger quarters being found necessary.

Frank McNutt, Lacon, Ill., has purchased the garage of J. E. Kamp for $3,000, and will do a general repair business and carry accessories.

The Shelton-Scheele Motor Co., Davenport, Iowa, has opened new salesrooms at 418-420 Main Street, which have been remodeled and improved. The company will distribute Jeffery cars and trucks in eastern Iowa. J. H. Shelton was formerly wholesale manager for the Jeffery distributer in Chicago, and J. A. Scheele was formerly Jeffery agent at Elgin, Ill.

The Comet Automobile Co., Decatur, Ill., has appointed Vernon Beck general sales manager. He was formerly with the Chalmers and Elgin companies in the same capacity, and John Schroeder has been appointed production manager. He was for many years with the Hyatt Roller Bearing Co., Detroit, and later with the Elgin Motor Car Co.

The Cadillac Motor Car Co., Peoria, has opened new salesrooms and service station at 1701-1711 Main Street. Souvenirs were distributed to callers and an orchestra played during the day and evening. Rollen Travis, president, was agent for the Cadillac in Putnam County in 1907, and has been given increased territory until he now has the major portion of central Illinois, including Peoria, Springfield and Quincy.

The Rockford Reo Agency, Rockford, Ill., has opened new salesrooms, service station and garage at 113 South Madison Street.

The Fenton-Roberts Automobile Sales Co., Decatur, Ill., has leased the Armory building, Main and Franklin Streets, and will move in April 1, following some alterations. The firm will be distributer for Chevrolet and Enger in Macon County and will also handle supplies.

George Nettz, Dixon, Ill., Ford dealer, has rented the building next to his garage to be used as a salesroom. He will also conduct a Standard Oil Co. service station.

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The Rice Lake (Wis.) Motor Car Co., Buick dealer, announces that J. R. Collins has become an officer and director and will be vice-president and general manager.

H. H. Newell, Burlington, Wis., Ford dealer, has taken possession of the Gill Livery Co.'s stables, which have been remodeled into a garage and repairshop.

Maag & Nelson, West Allis, Wis., who recently purchased the Engel Garage in that city, have been appointed local dealers for the Overland and Willys-Knight.

John Milliken, River Falls, Wis., has moved his tire store and vulcanizing shop from the Langdon Building to new and more commodious quarters at Maple and Second Streets.

The Wait Automobile Co., 616 Grand Avenue, Milwaukee, Moline-Knight State distributer, has been appointed local dealer for the Inter-State.

The Milwaukee Motor Sales Co., 1802 North Avenue, Milwaukee, Wis., has been organized by J. J. Koehler to become eastern Wisconsin distributer of the Elcar.

The Service Truck Co., Milwaukee, Wis., State distributer of Service trucks, has opened salesrooms and service station at 553 Broadway. B. F. Blaney is general manager.

E. A. Swendson, 718-724 National Avenue, Milwaukee, Ford dealer, has been appointed Milwaukee County distributer of Pennsylvania vacuum cup tires.

The Standard Oil Co. (Indiana) has awarded contract for the erection of a filling station costing $5,000, at La Crosse, Wis., to be ready May 1.

Soderstrom & Anderson, Ogema, Wis., completed work on their new garage and repairshop and took possession March 1.

SOUTH

The Automobile Electric Service Co., Nashville, has opened at 720 Commerce Street. Ewing Thomas is manager.

The Carney Auto Co., Clarksville, Tenn., Chandler, Overland and Ford dealer, has moved into a new building equipped for service.

The Georgia Mak-A-Tractor Co., Atlanta, has been formed to handle the E. G. Staude Mfg. Co. equipment.

The Haynes Auto Co., Atlanta, has moved into a new building especially designed for sales and service at the corner of Peachtree and Ellis Streets.

W. W. Lucas and B. C. von Vleedon, Richmond, Va., have joined the staff of the Alsop Motor Co., Inc.

W. K. Grant, New Orleans, has joined the force of the Stoutz Motor Co., Saxon distributer.

The Birmingham Prest-O-Lite Service, Birmingham, has opened at 2030 Fifth Avenue.

The Studebaker Corp. of America has opened a retail branch in Louisville, the showroom and repair department being located for the present in the Arcade building, Fourth Street and Broadway. Wilson M. Taylor, efficiency expert of the Studebaker Corporation, has been appointed manager.

The Bernstein-Glenny Motors Co., New Orleans, successor to the Jeffery Sales Co. of Louisiana, will sell the Stearns-Knight cars and the G. M. C. trucks.

NORTHWEST

Ed. Reynolds and Herman Dense, Rose Creek, Minn., have bought the John Diedrich Garage.

Calvin Bros., Sherburn, Minn., will erect a garage.

Proctor Auto Service & Transportation Co., Proctor, Minn., is building a garage.

A. A. Eich, St. Cloud, Minn., will erect a $20,000 garage, three stories.

Peterson & Frykbloom, Underwood, Minn., will build a garage.

W. W. Koon, Vivian, S. D., will build a garage.

Chavet Co., Twin Brooks, S. D., will erect a garage.

Henry Kohls, Cologne, Minn., will enlarge his garage to 42 x 70 ft.

D. J. McDonald, Whitewood, S. D., is remodeling the Clayton Building into a garage.

Ellithorp & Arnes, Hazleton, N. D., have sold their garage and shop to H. O. Batzer, who will erect a new building. The firm dissolved partnership.

Isaac Hegge, Hatton, N. D., has sold his interest in the City Garage to Ostlie & Son.

G. I. Fellman, St. Hilaire, Minn., sold his garage and equipment to Erickson Bros. of Wylie, Minn.

Henry Mullen, Cass Lake, Minn., will operate a garage in connection with his automobile salesroom.

John E. Johnson, Hitterdal, Minn., will build a garage.

R. E. Snell, Pine River, Minn., bought the Motor Inn Garage.

Paul and Michael Kinn, Hankinson, N. D., will enlarge the garage of the Hankinson Auto Co.

McKinney-Fuller Motor Co., Glasgow, Mont., will erect a modern garage.

N. A. Anderson, White Rock, S. D., has bought the White Rock Garage.

The McVille Auto & Supply Co., McVille, N. D., has dissolved partnership between Lipper, Elemearud & Haggeberg.

N. E. Blood, Dickinson, N. D., sold his automobile and repair business to Frank Dunlap of Circle, Mont.

John Sundahl and Henry Miller, Antelope, Mont., sold their garage to F. D. Morck.

Fred Fick, Lake City, Minn., bought the interest of his partner, Henry Ritschen, in the Central Garage.

George Chipman, Granada, Minn., sold his interest in Chipman & Hill to Oscar Hill.

Ole T. Larson, Winger, Minn., will erect a garage.

Motor Service Corp., Lisbon, N. D., capital $25,000, has been formed to build a garage.

St. Paul.—Half of Minnesota and eight counties in Wisconsin are to be handled for the Harroun Motors Corp. by a company to be capitalized at $100,000 by T. J. Skellet, M. O. Moren, O. H. Carlson, H. H. Thorpe and Richard Dougherty. It will take 3.1 per cent of the output for five years.

Frank S. Dow Co. has opened a salesroom for Chalmers cars at 370 Main Avenue. Frank S. Dow, Sr., is president.

The Peerless Tire Co. has been formed and will sell tires at 177-179 West Sixth Street. Orson B. Powers is manager.

Scheffer & Hazeltine, 344 N. Exchange Street, have moved to larger quarters at 160 West Sixth Street, formerly Fisk Tire & Rubber Co. headquarters.

The Detroit Electric Car Co. has formally opened its new quarters at Milton Street and Grand Ave.

The Roberts Motor Car Co. has opened its new building at 257 West Seventh Street. The Stanley Steamer has been added to the Chevrolet line.

Frank Obr, Belvidere, S. D., is building an addition to his garage.

Dimock Auto & Supply Co., Dimock, S. D., will build a two-story garage.

M. H. Johnson, Montpelier, N. D., bought the A. C. Geiner Garage.

Keyes & Schweitzer, Moorhead, Minn., opened the new Comstock Garage.

Ole Hammerness, Holt, Minn., opened a garage in the Reierson machinery building.

L. J. Roebuck, Interior, S. D., has bought the Motor Inn Garage.

L. N. Redfield, Parker, S. D., moved into his new garage.

R. R. Hoyt, Thompson Falls, Mont., will build a garage.

Edward Love, Parma, Mont., will build a garage.

Harry W. Boozer, Genou, Mont., is building a garage.

George Hellmuth, Burnstad, N. D., will build a garage.

Fred Perrin, Willow City, N. D., will build a garage.

Philip Blank, New Salem, N. D., will build a garage.

Feetham & Feetham, Grand Forks, N. D., will build a fireproof garage.

P. W. Myron & Co., Hettinger, N. D., have opened a tractor school to last three weeks or more. It is open to anyone.

Dr. H. Acton Roan, Minneapolis, has given up his dental practice and formed the H. Acton Roan Co., 1110 Harmon Place, to have charge of sales of the Archer tire, made in Minneapolis.

B. R. Kelly, La Crosse Auto Co., has been made distributer for the Happy Farmer tractor in central Minnesota.

H. O. Hench, Minneapolis, has been put in charge of the sales promotion department opened by the factory branch of the B. F. Goodrich Co., Harmon Place.

The Kelly-Flynn Co., Conrad, Mont., will open a Ford accessory shop and carry a full line of supplies.

L. M. Allen and C. H. Keeler, Davenport, Iowa, have formed a partnership and will operate a new garage at 311 East Third Street. Allen was for a number of years passenger traffic manager of the Rock Island Railroad. Keeler was in the livery business in Davenport for many years. The new building will replace the old livery barns operated by Keeler which are now being torn down.

SOUTHWEST

Dallas.—The Co-operative Garage Co. has been organized at Dallas and plans have been made for the erection of a building, 100 x 180 ft., at Young and Broder Streets for the garage. The building, a one story and basement structure, will cost $60,000, and is to be completed by July 1.

The garage is to be conducted on the "co-operative" scale. It will be conducted on the service at cost plan. Every patron must be a stockholder and the cost of maintenance is to be prorated among the stockholders.

The Buick Automobile Co. of Texas, headquarters at Dallas, has moved into its new home at Young and Broder Streets. The company operates a service station.

The Graham McClure Co., Dallas, is the latest automobile concern to enter the Dallas field. The firm is composed of R. A. Graham, president of Graham Bros., Indianapolis, and M. W. McClure, late of the Texas Harvester Co. The concern will handle a light truck attachment manufactured by Graham Bros.

The Beaumont Cadillac Co., Beaumont, Tex., will move from its present location on Fannin Street to the new Gilbert Building at the corner of Pearl and College Streets.

The Big Springs Garage, Big Springs, Tex., has moved from its present location at Fourth and Main to the W. F. Cushing Building.

Barnett & McGormick, Corsicana, Tex., distributer for the Overland, bought a half interest in the Corsicana Garage, Lewis and G. W. Tidd, proprietors.

H. B. Bomarx, Corsicana, Tex., has leased a brick building and will open a general automobile accessory store, together with a gasoline depot.

C. L. Woods, Clarendon, Tex., has sold the City Garage to Mr. Butler, who has been in his employ several years.

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Ozro Hill, Frisco, Tex., has let the contract to J. H. Harris for the erection of a brick garage.

Cecil Roderick, Buffalo, Mo., has bought an interest in the Knowels Garage.

The Lee Motor Co., Chillicothe, Mo., is remodeling its quarters.

W. C. Nutt, Clinton, Mo., has opened a garage.

Chas. F. Beavers, Neosho, Mo., has bought an interest with his brother, John B. Beavers, in the automobile repair business of Hugh How.

Bosserman & Keltner, Pineville, Mo., are erecting a 16 x 50-ft. addition to the rear of their garage.

Henry Ryan, Warsaw, Mo., will erect a garage.

H. H. Cherry, Walker, Mo., recently lost his garage by fire. The building was valued at $1,000, with an insurance of $1,200. Mr. Cherry will rebuild at once.

Dallas Krampe and Tom Furnish, Holliday, Mo., will open a garage.

The Larned Automobile Tire & Supply Co., Larned, Kan., recently suffered a loss of over $7,500 by fire.

Adolph Hostetter and Henry Zollinger, Miltonvale, Kan., recently suffered a loss of about $30,000 when their garage and cars burned.

Tennant Bros., Stanberry, Mo., Maxwell dealers, are remodeling the Lindley Building for office and salesrooms.

The Francis Street Garage, St. Joseph, lost forty automobiles in a fire recently. The loss is about $85,000.

A. Ruhnke, Wathens, Kan., will open a garage.

The Main Street Garage, Lebanon, Kan., is to be enlarged.

Fern Winpigler, Duquoin, Kan., is building a garage.

Wm. Blosser, Marshall, Mo., Overland dealer, is moving his salesroom into a larger and fully equipped building.

J. Ed. Bauer, Osborn, Mo., has sold his garage.

Coon & Miller, garage owners, Princeton, Mo., have traded their equipment and supplies to Kelly Fisher for a 60-acre farm.

Frank Werntz & Sons, Raymore, Mo., will open a garage.

Snider & McGreggor, Portland, Kan., will erect a garage.

Amos Abernathy, Scottsville, Kan., will open a garage.

A. R. Sisson, Wilsy, Kan., will remodel his stable into a garage.

C. D. Huested, Wellington, Kan., sold his repairshop to D. L. Bomar. Huested will retain the agency for the Willard battery and will run an exclusive battery and electrical repairshop.

Rust & Gillett, Washington, Kan., Ford dealers, are building a garage.

S. B. Taylor, Westmoreland, Kan., is remodeling the Red Livery barn into a garage and repairshop.

Scott Morgan, Wilburton, Kan., has bought the Rolla Garage.

D. S. B. Motor Co., St. Joseph, temporarily located in the Logan Building, will build a home soon.

The Manker-Gibson Used Car Co., Salina, Kan., has opened here.

The Diamond Motor Co., St. Joseph, Hudson dealer, is planning a two-story garage.

Garvie & Shockey, Abilene, Kan., are building a garage.

Charles Cruse, Abilene, Kan., will open a garage soon.

Ira Lumbar, Abilene, Kan., will build a garage soon.

P. C. Redman, Abilene, Kan., is adding a stockroom to his garage.

The Willard Co., Bellville, Kan., has opened a service station.

Snider & McGregor, Courtland, Kan., Ford dealers, are opening a garage and repairshop.

F. D. Peatling and Wm. Waterstradt, Concordia, Kan., have opened a fully equipped tire repairshop.

Baker & Schriber, El Dorado, Kan., will open a garage.

Robinson Bros., Florence, Kan., have purchased the adjoining building, which will also be used as a garage.

Horton & Roper, Genesee, Kan., will open a garage.

Miller & Warden, Garden City, Kan., will enlarge their building.

Ed. Schmidt, Great Bend, Kan., will open an automobile supply and accessory store here.

Frank New, Hoosier, Kan., has opened a garage.

Howard & Murphy Motor Co., Hutchinson, Kan., is enlarging its repairshop.

King Motors Corp., Hutchinson, Kan., is building a branch.

E. J. Barber, Howard, Kan., Ford dealer, has opened a new garage.

Hutchinson Fdry. & Mch. Works, Hutchinson, Kan., will lease the brick garage to be erected at Avenue B and Washington Street.

Harry Schepf, Junction City, Kan., has sold his interest in the firm to his partner, Dan Baker.

Charles Howard, Macksville, Kan., has leased the machine shop in connection with the Wolf & Press garage and will take charge soon.

R. A. Wright, Neosho Falls, Kan., is erecting a garage.

Mr. Ralstrom, Pleasanton, Kan., will erect a garage.

John Gunn & Son, Bethany, Mo., are building a new garage.

Edwards Garage, Desloge, Mo., has succeeded the firm of Edwards & Reichart.

Frank Beets, Independence, Mo., Overland dealer, has established a branch here.

W. H. Watson, Joplin, Mo., has established a factory branch for the Studebaker.

Adam Lang, Jr., Kaheka, Mo., has purchased the interest of H. P. Hammat in the garage firm of Lang, Hammat & Hall.

Ed. Moore, Lamar, Mo., has sold his garage.

Arthur Fleth, Liberty, Mo., will open a garage.

Frank Shy, Leeton, Mo., is building a garage, 50 x 100 ft.

The Co-operative Garage, Leeton, Mo., has been sold to Mr. Thompson.

Charles S. Brown, Marshall, Mo., will open a motor livery business.

J. H. Stubblefield, St. Louis, has joined the staff of the Kardell Motor Car Co. in the truck department.

St. Louis, Mo., March 20.—The immediate erection of three buildings by or for automobile companies is announced.

A two-story building will be erected at Lindell Boulevard and Grand Avenue by the Mercantile Trust Co. for the Vesper-Buick Automobile Co., to be 103 x 144 ft. The building is to be planned under direction of F. W. A. Vesper. The corner where this building will be erected has been the home of three large tire service stations for several years.

The King Motors Corp. has arranged for the erection of a two-story building at Twenty-eighth and Locust Streets. The building will be 55 x 134 ft. Several officials of the King factory have consulted with the architects to secure for the building the latest service and display plans. The King Motors Corp. controls the King car distribution for practically the entire Southwest and operates branch salesrooms at Kansas City, Wichita and Hutchinson.

The Moon Motor Co. is building a home for its retail trade at 3115 Locust Street, because this branch of the trade has outgrown the present quarters at 3040 Locust Street. This building will be one-story, 130 x 40 ft., with a display room 40 x 40 ft.

The Weber Implement & Automobile Co. has signed a 10-year lease on a three-story building, 109 x 40 ft., at Twenty-first and Pine Streets, for a used car salesroom, shop and factory.

The Davie Motor Car Co., St. Louis, has been organized to sell the Stephens car. A salesroom has been opened at Eleventh and Pine Streets, in the downtown business district.

MOUNTAIN

The Auto Equipment Co., Denver, has moved from 1554 Broadway to larger quarters in the Griffith Building, Fourteenth and Lawrence Streets, where it is running a motor supply business on a wholesale basis.

The General Auto Supply Co., Denver, is a new accessory concern at 1606 Broadway. L. A. Bolthoff is manager.

The Westcott Auto Sales Co., Denver, Westcott distributer for Colorado, Wyoming and western Nebraska, has moved from 35 East Colfax Avenue to 1541 Cleveland Place. Baxter Rarie, formerly of the Mulnix & Rarie Auto Sales Co., is sales manager.

The Chamberlain-Woods Motor Sales Co., Denver, Hupmobile, Dort and Locomobile distributer, has quit business.

The Denver Auto Storage Co., Denver, is a new garage business at 1508-1512 Cleveland Place, with two floors 50 x 125 ft.

COAST

H. E. Coffin, Seattle, formerly of the Northern Bank & Trust Co., has joined the Grant Campbell Motor Car Co., local Grant distributer, as a member of the firm.

Arthur E. Lindborg, Spokane, has been appointed manager of the G. M. C. truck department of the Northwest Buick Co.

William V. Kearns, Spokane, has opened a new salesroom at 1305 First Avenue for the Dort. George Beck is in charge of the service station.

F. Z. Gemberling, 1309 Sutter Street, San Francisco, has opened a tire store and installed a complete vulcanizing plant. He was formerly with the Reed & de Yonge Rubber Co.

Port Townsend, Wash., March 20.—Completed at a cost of $20,000, the new garage of the Peninsular Motor Co. was formally opened with a ball last week. The building is of solid reinforced concrete construction, equipped with a hot water heating plant. A concrete guard strip extends along one side of the main room, making it possible to move cars without danger of injury to tops against the side walls. The company has been in business for three years and represents the Buick and Ford. H. H. Morrison is manager.

Ballou's Automobile Service Station, Seattle, has been opened by W. B. Ballou, Glen H. Wallace and H. G. Ballou at East Madison and Fourteenth Streets.

C. E. Perry and Robert Taylor, Seattle, have taken the distribution of the Stanley steam car for King County and headquarters have been opened at 405 East Pine Street.

The Aston Motor Car Co., Los Angeles, Pullman dealer, has moved to a new location at 1132 South Figueroa Street.

Ralph C. Hamlin, 1040 South Flower Street, Los Angeles, distributer of Franklin and Scripps-Booth, has taken the agency for the Selden truck.

George W. Houk, Los Angeles, has opened a branch at 1101 South Hill Street.

Acme Vulcanizing Co., Los Angeles, has opened a plant at 411 West Pico Street to deal in new tires and rebuild used casings.

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Allen Gasoline Delivery System Is Operated by Air Pressure

Simplicity, Safety and Economy Are Features

A GASOLINE delivery system, operated on compressed air and having many radical features, has been developed by the Allen Pressure System Co., 1926 Broadway, New York. This company takes its name from Wm. A. Allen, president of the Allen Auto Specialty Co., maker of Allen tire cases, who is the moving spirit of the new concern.

The advantages claimed for the system are: First, absolute protection of the stored liquid against fire and explosion. Second, simplicity of construction and operation. Third, automatic shut-off, causing all discharge to stop when the desired quantity has been drawn. Fourth, wide range of adaptability; no limitations to height, distance or speed of delivery.

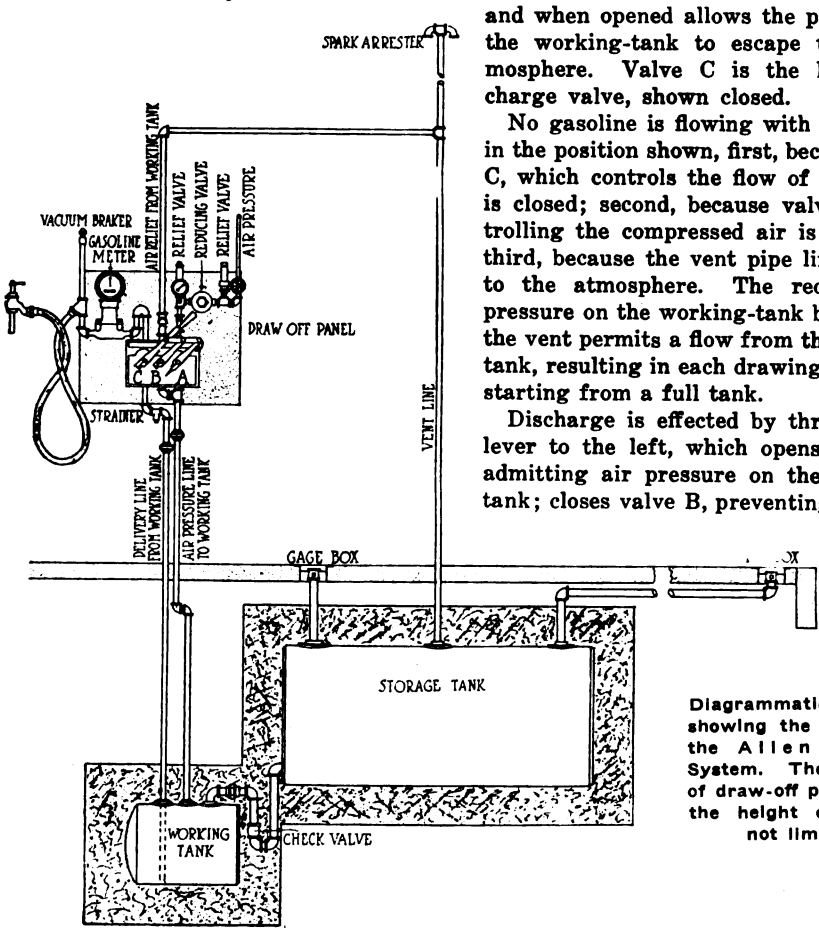
Gasoline is delivered by applying pressure to the working-tank (see illustration), the air forcing the liquid up through the delivery pipe. As soon as the gasoline flow is shut off, the working-tank is automatically connected to a vent pipe, which is open to the atmosphere. This allows the storage-tank line check valve to drop open, and gasoline flows from the storage-tank to the working-tank by gravity, and the working-tank is refilled. All air is thus forced from the working-tank and no dangerous gas is left in the system.

Each gasoline delivery line is connected to its individual working-tank, supplied from the main storage-tank. Although most commonly used for transferring gasoline, oil or other similar liquids may be handled with equal facility.

The point at which the gasoline is delivered is called the draw-off panel; it is the switchboard of the system. Control is effected through three valves, linked together and operated by a single lever. These control, respectively, the pressure of air on the working-tank, the vent pipe opening to the atmosphere, and the flow of liquid to the discharge nozzle. Valve A admits compressed air to the working-tank and is shown in the closed position. Valve B is situated in the vent pipe line and when opened allows the pressure on the working-tank to escape to the atmosphere. Valve C is the liquid discharge valve, shown closed.

No gasoline is flowing with the valves in the position shown, first, because valve C, which controls the flow of the liquid, is closed; second, because valve A, controlling the compressed air is shut, and third, because the vent pipe line is open to the atmosphere. The reduction of pressure on the working-tank by opening the vent permits a flow from the storage-tank, resulting in each drawing operation starting from a full tank.

Discharge is effected by throwing the lever to the left, which opens valve A; admitting air pressure on the working-tank; closes valve B, preventing a loss of pressure through the relief pipe, and opens valve C, forcing the liquid through to the delivery nozzle because of the pressure on the working-tank. During this operation the check valve on the storage tank line is automatically closed, preventing a return of the liquid.



Diagrammatic sketch showing the layout of the Allen Pressure System. The number of draw-off panels and the height of lift is not limited

A special meter, located on the draw-off panel, accurately measures all liquid sold or consumed. An auxiliary hand registers the individual discharge in gallons or parts of gallons up to 10 and is so arranged that it may be set back to zero from any point by simply turning the hand to the right. The continuous record on the lower part of the dial records the total number of gallons drawn up to 100,000, repeating automatically, regardless of the number of times the set-back is changed. This meter has been tested and approved by the Department of Weights and Measures of the State of New York and is claimed to register the actual amount of the liquid passing through.

In addition to simplicity of construction and operation, the system is said to offer absolute protection of the stored liquid against fire and explosion. Accumulation of vapor and evaporation is prevented, as the working-tank is refilled immediately after each draw-off. All working parts are eliminated, and a minimum of attention is required to keep all parts in working order.

A bottle of carbon-dioxide is supplied with each outfit, for use in case of breakdown of the air compressor, and the system made independent.

Although the Allen pressure system is perhaps best suited for the large multi-storied garage, or where the supply tank must be at some distance from the discharge, its inherent advantages still hold good for a small garage.

The price varies. Many factors enter into the cost of an installation—whether it be in a new or an old building, the size of the storage tank, the number of the outlets, and their distance from the supply tank. The amount of pipe required brings the first cost somewhat higher than that of a pump system, but this is claimed to be balanced by the convenience, economy and safety.

Kissel Sales Race

LOS ANGELES, March 17—Salesmen of the seven branches of the Pacific Kissel Kar Co. in Los Angeles, San Francisco, Pasadena, San Diego, Oakland, Portland and Seattle are engaged in a novel selling race known as the Lincoln Highway Handicap. The contest is of 6 months' duration and there will be four winners. The company represents the Kissel, Briscoe, Ford and Federal truck on the Pacific coast and for each $100 in sales, the salesman advances his position along the Lincoln Highway a certain number of miles. The reward is to be a vacation trip on salary.

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A Department of

Better Mechanics

No. 15

Rebuilding the Storage Battery

WHEN TO TEAR THE BATTERY DOWN

THIS is necessary when one or all of the cells of the battery do not take a charge after being on a battery charger for 24 hours and show no signs of coming up. The hydrometer measurement of the specific gravity is the best method of determining whether or not the battery is charged, and the table shows the amount of charge for each hydrometer reading.

However, a voltmeter may be used, as shown in Fig. 1. The voltage of one cell when fully charged is 2.5 volts when on charge at normal charging rate. If by either of these tests one, two or all of the cells of the battery are shown to be defective, all should be torn down and rebuilt.

Usually the defective cell alone is torn down and repaired. This is poor business, as the other cells have been subjected to the same treatment, and may be on the verge of breaking down.

TEARING DOWN THE BATTERY

Removing the Terminals

Two methods are commonly used, the first employing a puller, as shown in Fig. 2, and pulling the terminal bodily from the plate strap pillar. By this no lead is wasted, a drill or drill press is not needed, and the job is quickly done.

The second method uses a special ¾-in. drill, Fig. 3. The center of the plate strap pillar is approximated and a hole about ¾ in. deep drilled into the terminal. This is done at each end of the terminals, and then they may be worked off with a pair of pliers.

Previous Articles

Subject	No.	Date of Issue
Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains	2	Dec. 20
Maxwell—Rear axle repairs	3	Dec. 27
Chevrolet—Clutch repairs	4	Jan. 3
Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Buick—Rear axle adjustment	8	Jan. 31
Chalmers—Valve and ignition timing	9	Feb. 7
Dodge—Brake adjustment—Push-rod care	10	Feb. 14
Studebaker—Torque arm repair—Push-rod care	11	Feb. 21
Cole—Adjustments of motor	12	Feb. 28
Paige—Oil level adjustments	13	Mar. 7
All Cars—Removing Compression Knock	14	Mar. 14

Removing the Sealing Compound

The sealing compound holding the outside cover of the battery in place may now be removed either with a heated screwdriver or putty knife. All f the compound down to the edge of the battery jar should be dug out and saved, unless more compound is at hand.

Removing the Cell Top

The liquid in the battery should be removed before this operation, as any gas coming from the cell is explosive. Using a flame from a blow torch, or from the illuminating gas main, gently heat the top of the cell. Then take a pair of pliers in each hand, grasp the plate strap pillars and work the plates out of the battery jar. If the plates do not come readily, fill the cell with boiling water. This will soften the jar so that the plates may easily be removed. Otherwise the connecting straps on the plates may be broken.

INSPECTION AND REPAIR

How to Examine the Plates

There are three main plate defects to look for. These are buckled plates, worn or mushy separators or loose or diseased active compound. And there may be a combination of all three.

Place the plate group on a clean

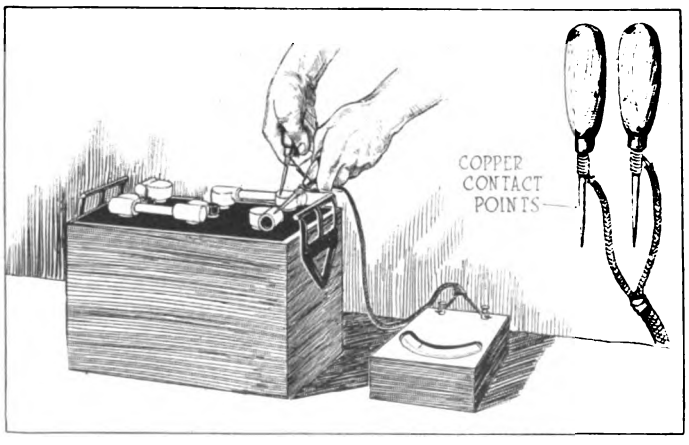


Fig. 1—Voltmeter and copper contact points for testing voltage of different cells

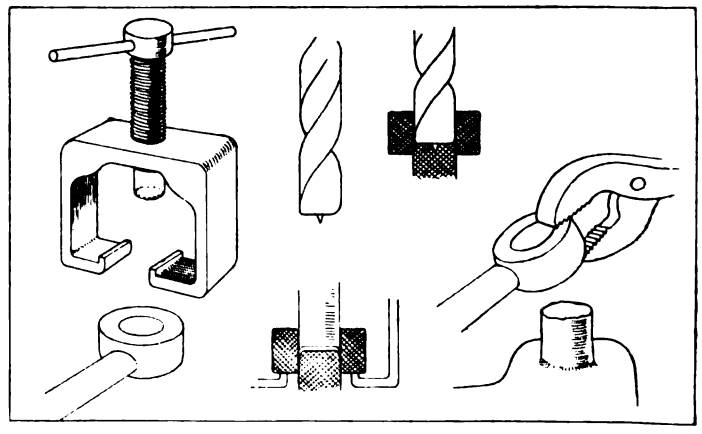
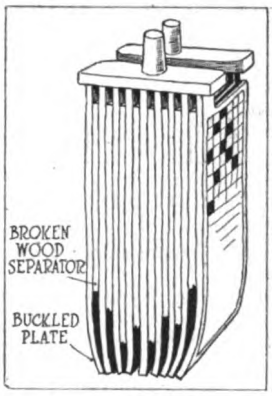


Fig. 2—Left—Puller for removing battery terminals. Fig. 3—Right—Removing terminals by drilling

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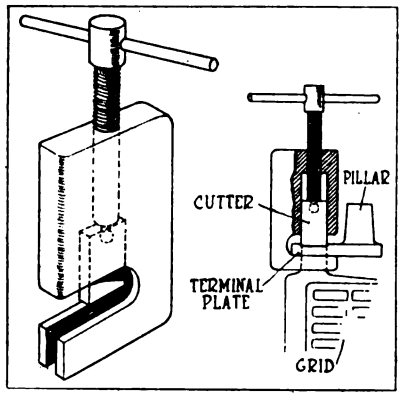


Fig. 4—Left—Broken down wood separators allow the plates to buckle and short circuit. Fig. 5—Right—Device for removing plates

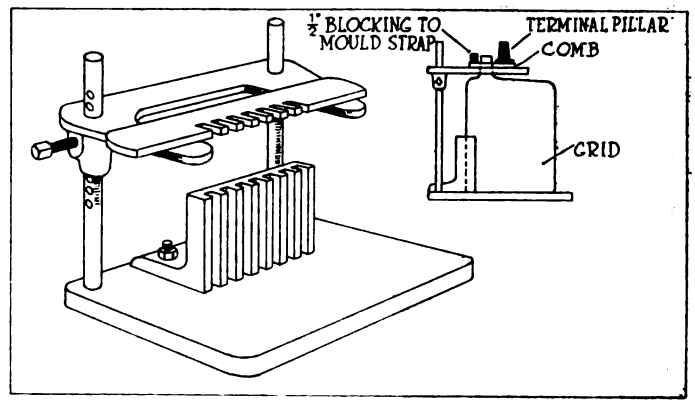


Fig. 6—Right—Adjustable rack which holds plates in position while terminal is fused in place

bench. Buckled plates are shown in Fig. 4, and both plates and separators must be replaced. If only one or two of the plates are buckled, they may be removed by the device shown in Fig. 5, and new plates burned in place of those removed.

Mushy or worn separators must be replaced. Plates that are blistered, extremely hard or have loose active material must be replaced; these diseases are most common to the positive plates. A set of negative plates will usually outlast two sets of positive plates.

To Remove a Battery Jar

If the jar is leaky it must be removed. To do this, fill it with boiling water and work it out. The heat softens the sealing compound. A gas flame may be used to heat the jar.

To Replace a New Jar

Clean out the stealing compound from the bottom and sides of the battery box. Warm the new jar slightly and work it into its place in the box. Then run the sealing compound in around the sides of the new jar.

HOW TO BUILD UP A SET OF PLATES

1—Saw the plate strap pillar from the plate strap. This pillar may be used on the new plates.

2—Using the adjustable plate building rack shown in Fig. 6, set up the same number of new plates as formed that part of the group.

3—Scrape the top, bottom and edges of the plate strap pillar base clean with a knife.

4—Do the same with the lug tips on the plates.

5—Butt the plate strap pillar against the lug tips on the plates, in the position it is to occupy.

6—Using ⅛ in. sq. iron strips, build up around the lug tips and the plate strap pillar base.

7—Adjust the lead burning flame so that the blue cone at the tip of the torch is about ¼ in. long.

For lead burning, an oxygen-illuminating gas flame is best. A red hot soldering iron may be used. A welding outfit may be used, but is expensive.

8—With a lead bar in one hand and the torch in the other, heat the lead bar, the plate lugs and the plate strap pillar base, melting all three at once, and then quickly melt enough lead from the bar to form the plate strap. By this the pillar base, plate, lugs and plate strap will all be fused into one.

9—Allow the lead to set and remove the group from the rack.

HYDROMETER READINGS

Hydrometer Reading	*Amount of Charge*	*Freezing Temperature*
1.280	Full	100° below zero
1.260	Three-quarters	60° below zero
1.225	One-half	38° below zero
1.160	One-quarter	Zero
1.150	Gone	13° above zero

Putting in New Separators

1—Cut the separators so that they are from 1/16 to ⅛ in. longer than the plates.

2—Wash the plates with running water.

3—Slide the positive group into the negative group. The positive group are dark brown, and there is always one less of them than of the negative group. Both outside plates are negative.

4—Now slide the separators in place. The smooth side always goes against the negative plate. The corrugations always run up and down.

5—Square up the separators, wash the group and see that the plates are not touching.

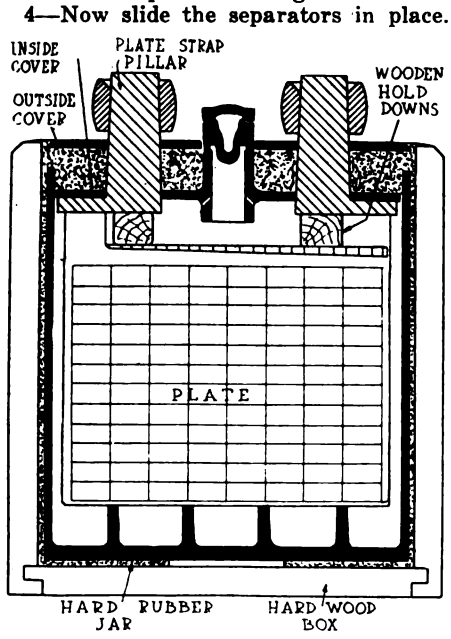


Fig. 7—Section through storage battery showing construction

ASSEMBLING THE CELL

1—Wash the jar out with running water.

2—Place an illuminating gas flame into the inside of the jar and heat the sides slightly. Hot water might be used, and is somewhat safer. This softens the jar, permitting the group to be inserted more readily, and with less chance of breaking the jar.

3—Slide the group of plates into the jar. The positive side of the first cell must be on the same side as the negative post of the second cell, and so on.

4—Heat the cell cover slightly and replace.

5—Melt the sealing compound in a metal retainer, and using a hot putty knife, pack the compound into the space between the cover and the edge of the jar.

6—Now gently heat the sealing compound on the edge and smooth it out with the putty knife. The heated putty knife alone may be used.

7—Scrape the upper ends of the terminal pillars clean with a knife.

8—Scrape the inside of the terminals clean.

9—Place the terminals onto their terminal pillars.

10—Using the lead burning flame or the red hot solder iron, as when burning the plates to the strap, burn the terminals to the posts. The post and terminal should be one solid piece. A pull with a pair of pliers will show it.

11—With a wire brush clean off the tops of the terminals.

12—Again apply the lead burning flame and smooth off the tops of the terminals to make a better looking job.

RECHARGING THE BATTERY

1—Fill the cells with 1250 acid.

2—Charge in the usual manner until the specific gravity becomes constant.

3—After the condition above is reached, continue the charging, giving about a 100 per cent overcharge.

4—If the specific gravity is then below 1.280, add acid and distilled water mixture until it is 1.280.

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Accessories

CONDENSITE-CELLULAC

A new fibre compound which combines the stable physical and chemical properties and insulating ability of present fibre compounds and vulcanized rubber. It is impervious to oil, is infusible and not affected by heat. It is tough and not fragile. It is readily machined and is furnished in sheets, rods and tubes. It may also be supplied in the soft, uncured condition and formed to fit by the application of heat. — Diamond State Fibre Co., Bridgeport, Conn.

MIRRORLIKE POLISH

A harmless liquid for cleaning, polishing and preserving all surfaces, including wood, metal, leather, glass; in short, it may be used on any part of the car. It will not injure clothing, as it leaves no greasy or oily residue. It is applied with a soft cloth. Price $3 per gal.—Mirrorlike Mfg. Co., 771 Lexington Avenue, New York City.

NO-RAIN-IN-THE-FACE

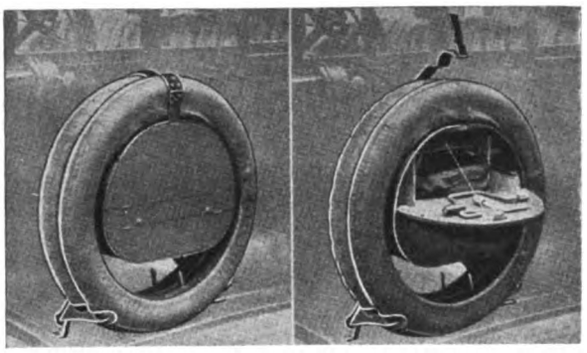
A transparent weather strip which is placed between the division in the windshield, thus preventing the rain coming in. No fastenings are required. Price 75 cents.—Akron Auto Garage Co., Akron, O.

COLUMBUS VARNISHES

The following color finishing varnishes have been added to the line of Peerless automobile specialties: Royal auto blue, black, gray, brewster green, medium yellow, red. They will be put up in the same style packages as the other Peerless specialties.—Columbus Varnish Co., Columbus, O.

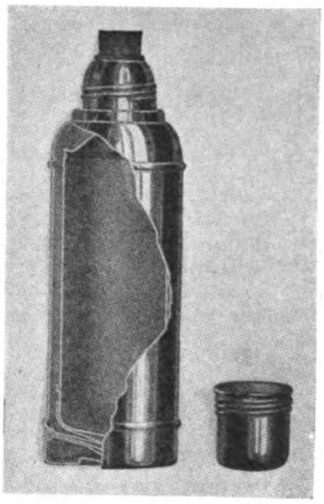
U-SAV-YOUR AUTOMOBILE DRESSING

It is a polish which may be applied after dusting or washing the car. It is rubbed on with a flannel cloth. Sample, 60 cents; quart, $1.—U-Sav-Your Mfg. Co., Warren, Mass.



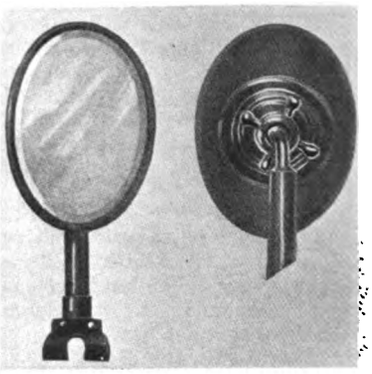
FERRIS TIRE HOLDERS

The rubber grip type has an oval tool box and the rim grip, a square one. May be attached to running board or rear of car. Price $5 up.—Ferris Auto-Carrier Co., 29 S. Seventh Street, Philadelphia.



FERROSTAT VACUUM BOTTLE

Strongly made with welded steel vacuum walls instead of glass. It has a highly glazed enamel over the interior so that it is as sanitary as glass. Finished in nickel or rubber. Price $6 up. Motor lunch kits and leather bottle cases are also made.—Stanley Insulating Co., Great Barrington, Mass.



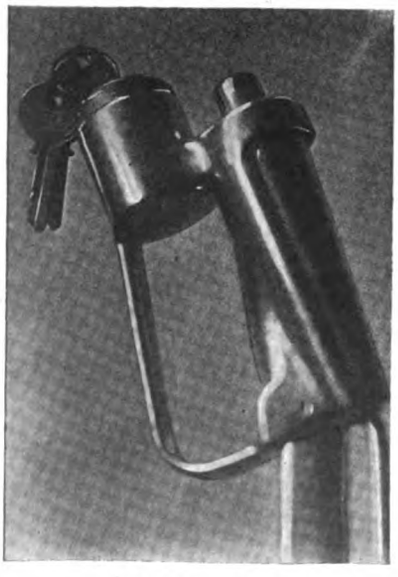
ALEXANDER MIRRORS

One of the many styles. Plain bevel French plate glass finished in black, nickel and black, nickel and brass. Price, 4 x 6, $2.50; 5 x 7, $3; 6 x 8, $4. All brass or all in nickel, extra. Other styles to meet all requirements, from $1.50 to $10.—J. Alexander Mfg. Co., 1931 Broadway, New York .



M & E GREASE CUP

The cup has a ratchet top and an interior coil spring which engages the corrugations in the top. It is made of a special grade of steel which is said to be practically rust-proof. It is finished in natural metal and is unplated. — Merchant & Evans, Philadelphia, Pa.

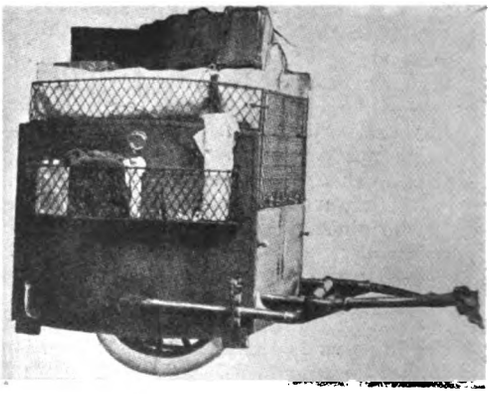


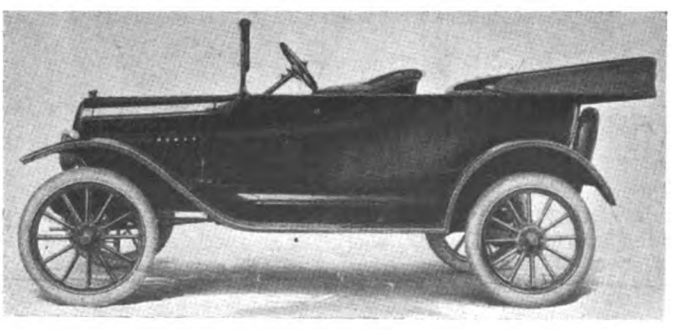
BRAKE LOCK

A Yale lock is combined with the emergency brake lever so that the ratchet button may be locked after the brake is set.—Earl Gaston, Minneapolis, Minn.

PEERLESS HOOD FOR FORDS

A hood and radiator cover to give a streamline appearance sell for $25. On Fords previous to August 1, 1917, the Peerless attachment complete with radiator, $45. Other specialties for Fords include commercial fenders, exhaust deflector, radiators, tool boxes, etc.—Corcoran Mfg. Co., Cincinnati.





HOLLAND TRAILER CAR

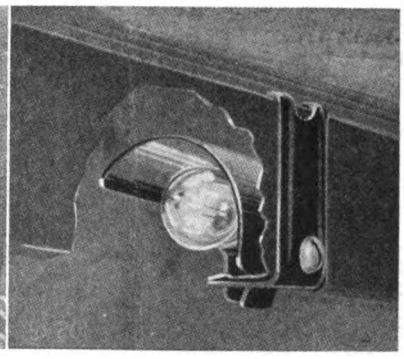
It is attached to the rear axle by curved shafts. It may be used as a delivery van, a produce cart, chemical engine, or a baggage car for the salesman. The body is 46 x 46 x 40 in. high. When used for touring it is equipped with a stove, tent, combination bed and table, drawers and tanks. Detachable wire baskets designed to be attached to the top and sides are provided if desired.—Holland Trailercar Corp., 2010 Broadway, New York.

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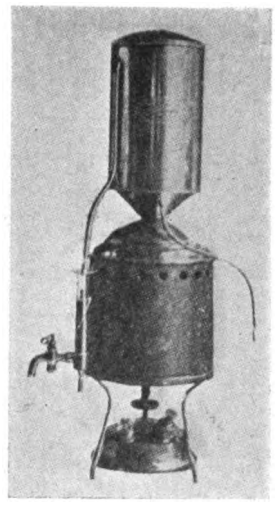
NEVEROUT DASH LIGHT AND CLOCK

For Fords. It is clamped on and is sold complete including wiring and bulb. —Rose Mfg. Co., Philadelphia, Pa.



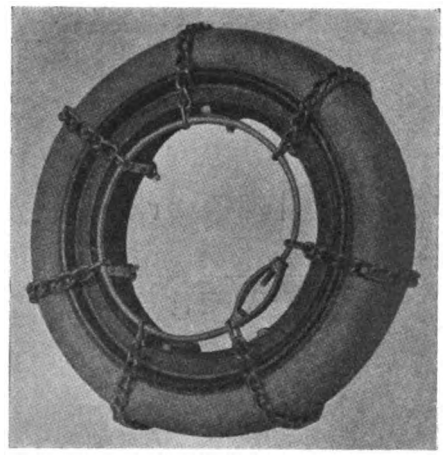
NEVEROUT DASH LIGHT

A dash light for Fords. It is clamped on to the cowl beneath the windshield. Current for the light is supplied from the magneto. — Rose Mfg. Co., Philadelphia, Pa.



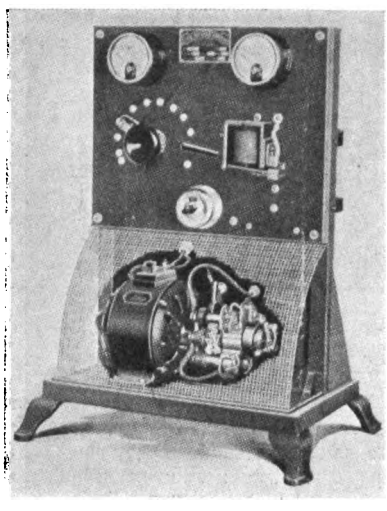
BARNSTEAD WATER STILLS

Distilled water for storage batteries is furnished at small cost and with little work. Prices from $12 up. The still shown burns kerosene and costs $19.—Barnstead Still & Sterilizer Co., 31 Chardon Street, Boston, Mass.



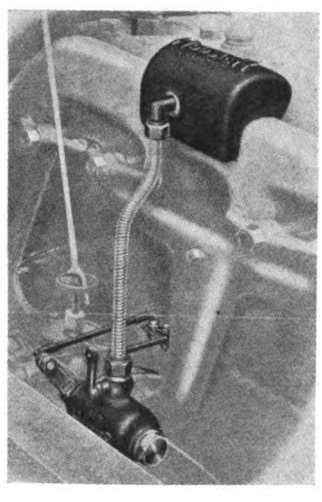
STANDLEY TRUCK CHAIN

A truck chain made in seven sections and tightened by a turnbuckle.—Standley Skid Chain Co., Boone, Ia.



STAHL RECTIFIER

Made in all sizes for charging storage batteries from alternating current supply. The smallest is one to five batteries, or a total of fifteen cells. By removing the batteries as soon as charged a total of thirteen fully charged batteries may be turned out in 24 hours. Price $135. A larger machine with two circuits and twice the capacity, $185. The machine is a synchronous motor provided with a commutator which changes the current from alternating to direct. The direct current is of such a nature that it does not harm the battery if it is charged faster than the indicated rate. It is started by inserting a cable plug and closing a switch.—Stahl Rectifier Co., 536 S. Clark Street Chicago, Ill.

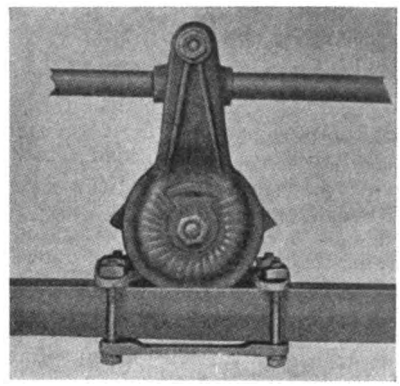


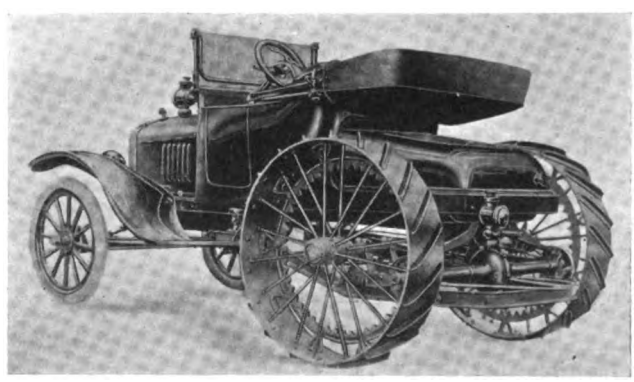
HOOSIER SUB-CARBURETER

It is attached between the intake manifold and the carbureter of the Ford, and supplies warm air controlled by a valve interconnected with the throttle. Price $10. Hoosier Sub-carbureter Co., Dunkirk, Ind.

OVER-LAND GUIDE FOR FORDS

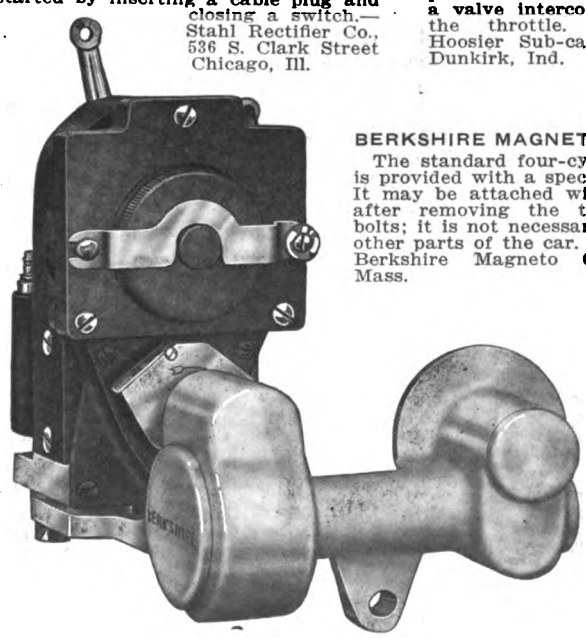
A device to aid the steering. It is clamped to the axle and attached to the tie rod. A spring inside the casting tends to hold the wheels straight ahead. Price $3.75. —Meixell Co., Merchant Bank Bldg., Indianapolis, Ind.





KNICKERBOCKER FORMA-TRACTOR

It may be attached in 15 min., it is said. The tractor unit consists of a subframe carrying the large driving wheels. Small sprocket wheels on the axle shafts mesh with internal gears on the larger wheels. Price $178.—Knickerbocker Motors Co., 170 Broadway, N. Y.



BERKSHIRE MAGNETO FOR FORDS

The standard four-cylinder magneto is provided with a special worm drive. It may be attached without difficulty after removing the timer and two bolts; it is not necessary to touch any other parts of the car. Price $37.50.—Berkshire Magneto Co., Pittsfield, Mass.



MARTINKIT FOR FIRST AID

An outfit for dealer and motorist alike. It is compact and complete, containing various kinds of cotton bandages, adhesive plaster, paper of safety pins, scissors, tweezers and carbolized petrolatum. Price $2.—Martin Auto Accessories, New York.

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Kissel's Double Six Is Ready

Weidely Overhead Valve Motor Is Used

Touring Car $2,250

THE Kissel Motor Car Co., Hartford, Wis., is now ready with its twelve-cylinder car, which has been designated the Double Six. The factory is producing at the rate of five cars a day. The new car is equipped with a Weidely overhead valve motor and sells for $2,250 in seven-passenger touring form and for $2,650 with an all-year sedan detachable top.

The bodies are built in the Kissel shops and each one is built to withstand the strains that would be imposed upon it by the use of an all-year top, whether these tops are furnished or not. These bodies are built up with a selected ash frame, over which is carried the paneling of silver finish pressed steel.

All the bodies are interchangeable.

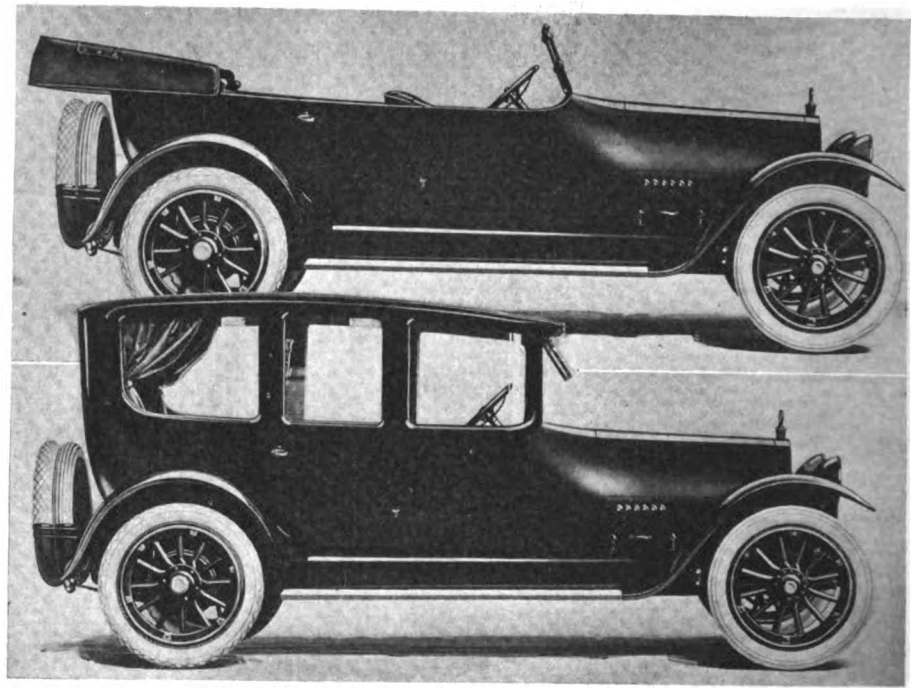
There is an aisle between the front seats. The standard bodies are upholstered in long grain hand-buffed leather over deep springs and genuine curled hair. Special material which will be furnished when specified is a mohair at $50 extra or a tapestry mohair at $100 extra. The bodies are painted Kissel blue with a hair-line stripe. Special jobs will be made up for $25 extra with enameled hood and fenders and $50 extra with specially painted hood and fenders.

Equipment Is Complete

The tires furnished as standard equipment are Goodyear cord, size 34 by 4½. Wood wheels are standard with an option on wire wheels at $100 extra. The Double Six carries as standard equipment a Boyce Moto-Meter, Stewart-Warner speedometer, Sparton motor-driven horn, ignition lock, ammeter and a complete complement of tools. The wheelbase is 128 in.

The Chassis is more or less founded on Kissel design as embodied in the Sixes. Because of the small bore and the compact design of the entire power plant it is claimed that the crankcase is shorter than in any other twelve cylinder engine. The lower section may be removed without disturbing other parts.

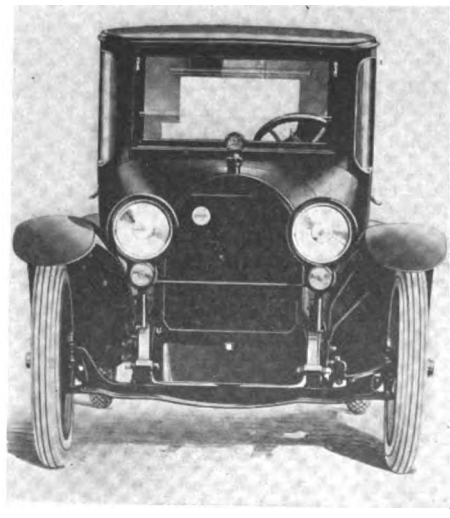
The single camshaft is an alloy-steel drop forging and runs in phosphor bronze bushings. The pistons used are of semi-steel. Scientific distribution of metal makes these pistons of light weight. They are fitted with three non-leakable piston rings. Wrist pins are of steel tubing, ⅝ in. diameter. The engine is oiled by pressure from a positive gear type pump to the crankshaft and lower connecting rod bearings and by splash to other parts. A Stromberg carbureter feeds gas to the cylinders. This instrument is set high in the V between the cylinders. The fuel is drawn from a 16-gal. tank supported in steel brackets at the rear by the Stewart vacuum feed tank.



The touring model and the All-Year Sedan model both retain many Kissel characteristics. The touring car is $2,250 and the Sedan is $2,650

Kissel Double Six

Price, touring	$2,250
Touring (all year)	2,650
Color	Kissel blue
Make of Motor	Weidley
Number of cylinders	12
Shape	I-head
How cast	Four groups of three
Bore	2⅞
Stroke	5
S. A. E. horsepower	39.7
Carbureter	Stromberg
Starting-lighting system	Delco
Clutch	Dry disk
Gearset	Three forward
Wheelbase	128 in.
Tires	Goodyear cord 34 x 4½
Make of axles	Kissel
Type rear axle	Kissel



A front view of the Kissel reveals well-blended lines

A feature found in the twelve which was originally introduced in the Hundred Point six is the elimination of all but two grease cups in the entire chassis. Moving parts which formerly required grease cups are now lubricated by oil bolts.

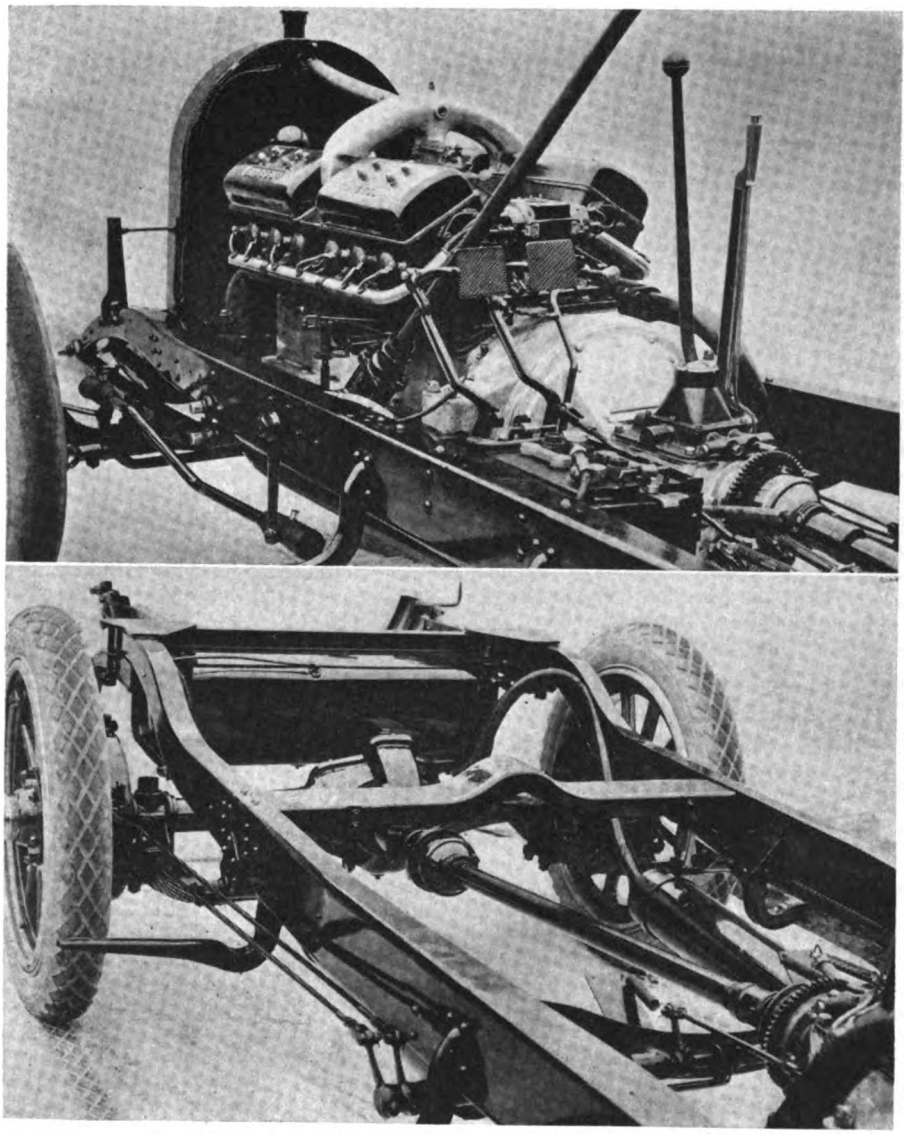
Starting, lighting and ignition is by Delco units. The generator is driven by gear from the camshaft, and the current output is controlled automatically by the Delco third-brush system. The starting motor engages the flywheel ring gear through Bendix drive. A Willard storage battery of the 6 volt, 100 amp. hr. type completes the equipment.

All electric wires terminate at a junction box on the front of the dash under the hood. This permits quick location of trouble and allows the complete removal of the body without cutting wires.

There is a dry multiple-disk clutch with asbestos faces driving against hardened and ground steel plates. The gearset which, together with the clutch is in unit with the engine, is the selective type with three speeds forward and a reverse. The case is attached to the engine crankcase with a light bell housing.

The axles are Kissel built, both front and rear. The front is an I-beam forg-

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Here are two views of the new Kissel Double-Six chassis, showing the appearance of the Weidely overhead valve twelve-cylinder motor and the arrangement of the drive and spring members

ing with chrome vanadium steel steering knuckles and arms. The rear is of the floating type, and in this the axle shafts are of chrome vanadium steel. Spiral bevel gear and pinion carry the drive from the main shaft to the differential. There are two Timken bearings on the pinion shaft. The final drive is Hotchkiss, with drive and torque taken through the rear springs.

Both service and emergency brakes are external. There are four contracting bands on the rear wheel drums, each having a 14-in. diameter with a 2-in. face.

The chassis is suspended on springs of chrome-vanadium steel. Semi-elliptics with a 2-in. width are used in the front, and three-quarter elliptics 2¼ in. wide in the rear.

John Mohler Studebaker, Sr., Dead

SOUTH BEND, IND., March 17—John Mohler Studebaker, Sr., died today.. Mr. Studebaker was the founder and almost to his death the guiding spirit of the vehicle and automobile company that bears his name. Born near Gettysburg, Pa., Oct. 10, 1833, Mr. Studebaker, as the son of a blacksmith, learned that trade. In the early days of California pioneering he manufactured wheelbarrows for miners, and by this means accumulated $3,000, with which he returned from the West to South Bend, where he purchased an interest in a wagon firm started by his brothers and known as C. & J. M. Studebaker. As years passed he foresaw the future of the automobile and greatly extended the business. The possibilities of the new field inspired him, and though beyond the years when men usually seek retirement he arose to the demands of the motor car industry with renewed energy. Mr. Studebaker was connected with the Studebaker Corp. of America as chairman of its board of directors until his eighty-second year.

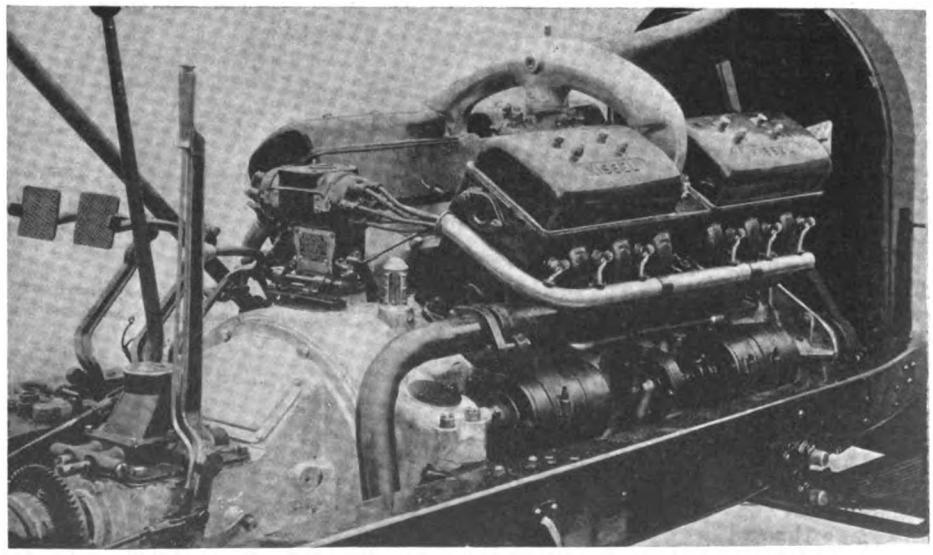
Conditions at New Castle Improving

NEW CASTLE, IND., March 17—The terrible cyclone which struck New Castle on Sunday, March 11, destroying 500 houses and killing close to 25 people, is still causing much suffering. The manufacturing and service plants of the Standard Motor Parts Co. were fortunate in escaping all injury. Shipments were resumed the day following the cyclone and business to-day is now going on as usual.

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40 Velie Cars a Day

MOLINE, ILL., March 17—The Velie Motor Vehicle Co. is now producing 40 cars per day, and estimates that the output for 1917 will exceed 10,000 cars. This will be practically double the output of the last year, and is made possible by better production methods. The assembling plant is being remodeled and overhead tracks being installed, so that the assembly is progressive. Few extra men are required for the increased production under the new methods, but the floor space is being materially increased by absorption of that part of the plant formerly occupied by the wagon works. It is predicted that within a year the wagon works will be crowded out entirely.



Motor, clutch and gearset form a compact unit, and valves being in the head leaves the alley between the cylinders accessible

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Brooklyn Truck Show Metropolitan Success

It Points the Way to Many Truck Shows Next Year —Several Special Displays

THE Brooklyn Truck show has been a surprising success in the amount of interest created, prospects obtained and trucks actually sold, and now there is serious talk of making it a Greater New York, a national show, next year. It is the first big step toward the general establishment of separate truck shows in all the big centers. It is positive proof of the growing impression that the time has finally arrived when public interest in trucks is sufficiently developed to insure the success of a truck show in every large center.

The building and decorations were the same as for the pleasure car show the week previous, and in fact the truck show itself was an overflow from the pleasure car show. In former years the trucks and pleasure cars were all together but this year the passenger car dealers wanted so much space that it was necessary to leave the trucks out, and inasmuch as the truck dealers did not want to be out altogether, the separate truck show the week following was organized. Thus, while its birth may be said to be accidental, it was an extremely fortunate accident because it shows at the present date it is possible to hold a highly profitable and entirely successful truck show in the Metropolitan district, a fact that heretofore had been a much debated point.

One outstanding feature of the show was the high percentage of genuine prospects. Except for the opening night there were practically no sightseers among those present. Thursday was especially set aside as vehicle traffic night, and Friday as retail grocers' night. These special evenings attracted groups which might not be immediate buyers, but were nevertheless interested in the development of the commercial vehicle and hence not to be classed as curiosity seekers.

The total attendance is estimated conservatively at 25,000 and a census of the booths showed an average of at least 50 prospects per exhibitor. Undoubtedly in many cases several exhibitors had the same prospects. The actual results are shown more clearly by the fact that one firm sold twenty-one trucks at the show, another sold seven, and sales of five or more were reported by many exhibitors.

It is true that many of these sales were to prospects who had been worked on somewhat before the show opened. Nevertheless the occasion gave the buyer a chance to look around extensively and hence made it possible to close the deal in short order.

Greater New York Show

Although called a Brooklyn show, the exhibit was more nearly a Metropolitan district show, for it was the only one to which buyers throughout the Greater City, northern New Jersey, Long Island, southeastern New York and southwestern Connecticut could go. There were more exhibitors from New York City proper than from Brooklyn, there being twenty-five from Manhattan Island, ten from Brooklyn and two from elsewhere.

An exclusive motor truck show will be held in Greater New York next year. The opinion of all the dealers was practically unanimous on this score. It is altogether possible that such a show, however, will be held at Grand Central Palace, possibly after the passenger car, possibly early in March. On the details of the time and location of the next show there is wide difference of opinion.

Particularly noteworthy were the several devices employed to call the buyer's particular attention to the mechanical features of the chassis. Packard had an elaborately cut-away chassis mounted on two swinging supports at either end, so that by turning a hand wheel, the entire chassis might be swung on its longitudinal axis to afford a view of its various parts. The turning was accomplished by a steering gear at the front, the hand-wheel, being the regular steering wheel of the truck. An electric motor was belted to the crankshaft to keep the parts in motion, but unfortunately it was not possible to have this in operation.

The Dodge chassis was also cut-away and a 1-ton Republic chassis was so polished in every detail that one was reminded of the Hotel Astor Salon.

That nearly half of the chassis exhibited were stripped, shows two things, first, that the impulse to exhibit was in many cases a hurried one, so that special efforts to secure interesting bodies, or indeed any sort of bodies were not possible in many instances and, second, that the buyer takes a real interest in mechanical details.



There was plenty of room for all in the mammoth armory. The same decorations were used as at the pleasure car show the week before

That the show was not entirely retail in nature is shown by the fact that there were four manufacturers' exhibits, namely: Hurlburt Motor Truck Co., International Motor Co., Locomobile Co., and Rainier Motor Corp. Of the rest, twenty-one were dealers and nine, factory branches.

Comparison of this year's Brooklyn truck exhibition with those of previous years is difficult. In former years commercial models were exhibited in conjunction with passenger cars, the former occupying such space at the back of the hall as was left when the pas-

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senger models had been accommodated. Twenty chassis were shown last year, representing seven different makes. This year, in number of makes, even the Boston show was exceeded, there being forty-one represented besides five other exhibitors of Fords and Ford adapters.

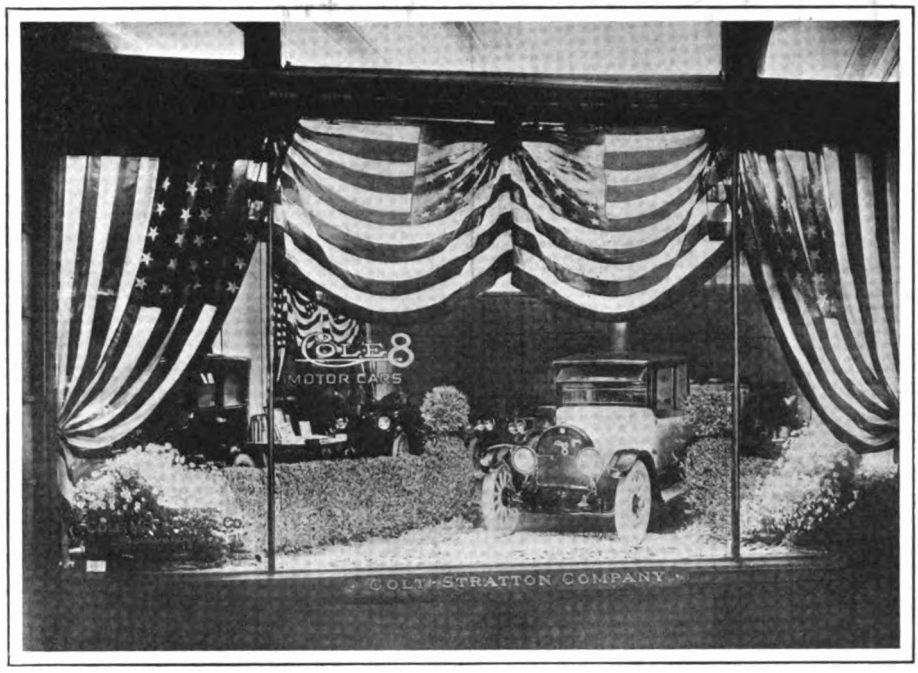
There were 110 motor truck chassis on view besides fire apparatus, sixteen Fords, some with commercial bodies and some with adapters, one Dodge with a truck attachment and three truck adapters not applied to chassis, or a total, exclusive of fire apparatus of 127 vehicles for commercial purposes.

There were thirty-four exhibitors of commercial vehicles, some of these representing two or more makes. One of these showed trucks of three makes besides one Ford adapter. This was the Broadway Motor Truck Co. of New York City, showing the Armleder, Collier, Sullivan and Kelley adapter.

Every one of last year's exhibitors appeared once more in the show just closed excepting the Buick company which had discontinued its commercial models. Five makes new to New York were revealed as well as several new models. The new makes were the Collier, Dodge, Fulton, Maxfer and Rainier. In addition to these, the U. S., Armleder, Larrabee and D-E were new to this section of the country.

New models included two of the new Federals, the complete line of which have been changed, one of the new Garfords which have undergone several important improvements, the new six-cylinder Hurlburt of 7 tons capacity, the new 1200-lb. Overland all-steel delivery vehicle, the heavy-service Packard 5- and 6-tonners, the Dispatch model, ¾-ton Republic, the internal-gear-driven 1-ton Selden and a new 1½-ton worm-driven Sullivan.

Putting Spring-time Into a Window



The Colt-Stratton Co., New York, Cole and Dodge dealer, recently turned its window into a spring garden. A Cole Tour-coupé was shown on a gravel walk flanked by genuine hedgerows; and there was real grass and flowers, too

Army Trucks Shown

Novelties appeared in the form of one of the Federals which went to the border, back in apparently good trim after the long campaign of strenuous watchful waiting with Squadron A, Cavalry, N. G. N. Y. There was also a little Ford, exhibited by the Twenty-third Regiment, N. G. N. Y., in whose armory the exhibit was held, which had seen some strenuous service in the southland.

In the Maccar exhibit was the Mueller demountable powerplant, one of these being mounted on a special stand to show how completely the power and control units had been assembled for instant removal and substitution in case of trouble. Studebaker showed a panel body of exceptional beauty, being finished entirely in white enamel, with gold raised lettering on the side. It was mounted on white wire wheels, a spare one with a tire being carried at the side. Not less beautiful was a Dodge, enameled a delicate lavender and lettered in graceful script with the name of a prominent New York florist.

Bad judgment was shown in the arrangement of some exhibits, one dealer placing a motor hearse in the most prominent position, so that it met the gaze first of every person entering the main hall.

'Among Those Present Were—'

In point of size, Republic and White shared the honors, each having six chassis. The advantage, perhaps, goes to the White company inasmuch as there was a large fire hook and ladder truck by this house, in the corridor. Reo, too, if one includes fire apparatus, deserves recognition because, besides four commercial models, two chemical trucks were shown.

A feature of prominence in the Brooklyn show was the large number of Ford commercial vehicles, both the simple Model T, with a delivery body and the more elaborate converted types.

Ford chassis with commercial bodies were exhibited by the Kohn delivery Contracting Co., the Curth Auto Sales Co., and the Ford Delivery Car Co. Adapted small car chassis and Ford adapters were shown as follows:

Maxfer-Ford, Nickerson & Schroeder, 1-ton chassis. Kelly-Ford, Broadway Motor Truck Co., 1-ton chassis. Smith Form-A-Truck - Dodge, Bishop, McCormick & Bishop, 1½-ton truck. Dearborn - Ford, Dearborn Truck Sales Co., 1½-ton express and separate attachment. Tonford-Ford, Curth Auto Sales Co., 1-ton chassis and stake truck. Dearborn - Ford, Overfield Auto, Inc., 1-ton piano truck and chassis. Truckmobile-Ford, Ford Delivery Car Co., 1-ton chassis. H-D-Ford, Hayes-Diefenderfer Co., ½-ton panel, undertaker's, panel with half cab doors, panel with closed cab, open express and stripped chassis.

A novelty was a lady salesman of the Hayes-Diefendefer Co., maker of the Ford extension.

A number of accessories were exhibited and an interesting new truck body. The latter was the McDermott body, built by the McDermott Body Corp., Long Island City, L. I. This body is of the knock-down type, having a standard platform to which may be applied any number of interchangeable sides and tops on the sectional-bookcase plan. A variety of different sorts of side panels, stakes, etc., were exhibited which were interchanged at will by Mr. McDermott and an assistant.

Among the accessories was a new tire chain, called the Putnam Armor Chain, applied to a D-E truck. The new A-1 Rim Tool manufactured by the Rynehart Rim Tool Co. was exhibited by the Kinnear Sales Co., Brooklyn, N. Y. Other accessories were Hydrogas, an attachment to the radiator by which live steam is introduced into the manifold; the Marko storage battery for lighting and ignition, the A. B. C. electric starter for Fords and the H. & N. carbureter.

Few Gatherings

Because of the somewhat casual origin of the show there was little planned in advance in the way of get-together meetings with the result that it was pretty much an each-man-for-himself affair. A distinguished banquet, however, in the interests of better highways took place at the Hotel Bossert, Brooklyn, Monday evening, March 5. Borough President Pounds, Public Service Commissioner Travis H. Whitney, and other prominent men were among the speakers. Many commercial vehicle and automobile men attended this event. A committee was appointed to improve highways; Herbert L. Carpenter, chairman.

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National Dealer Crisis Narrowly Averted

(*Continued from page* 12.)

The situation is best told by the dealers themselves as follows:

Roy Munger, Munger Automobile Co., Cadillac distributer, "No cars on hand. Haven't had any in some time, as all we can get are spoken for in advance. Planning to go to factory for shipment."

W. F. Rose, Rose-Fosdick Co., Hudson, "Have sixty cars for two weeks' demand. Have shipment en route."

J. W. Atwood, wholesale Buick distributer: "Have no cars on hand. Had hard time getting them under normal condition. Strike would practically paralyze business."

J. P. Kelly, Texas Oakland Co., Oakland distributer: "Big increase in sale of cars here finds us without supply for longer than 2 weeks' demand. Less than 20 cars in store. Few dealers throughout state have cars ready for delivery."

Frank L. Shaw, F. L. Shaw & Co., Studebaker distributer: "Have about 300 cars in storage ready for delivery. Just received this big supply. Will last about 6 weeks under former conditions. Good supply accessories except tires."

J. V. Hardy. District Manager Saxon Motor Car Co.: "Have good supply on hand, but will be gone in few weeks."

Geo. C. Chapman, manager Frawley Motor Car Co., Dort and Reo distributer: "Purchased 400 cars during Chicago show and just received them. They will be gone in a few weeks. Had 136 in storage last week; now have 25."

W. F. Brittson, president Brittson-Goodale Co., Mitchell distributer: "Have fair supply, but demand increasing will soon take cars. Two more weeks without shipments will see us without cars."

A. G. Bair, KisselKar Co., Kissel distributer: "Only few cars ready for delivery; demand increasing."

J. W. Sheeler, Dodge distributer: "Have less than 50 cars ready for delivery. Demand and shipping troubles have decreased number in store."

R. C. Langley, Dallas Buick Co., Buick distributer: "Good roads and freight congestion has caused dealers over state to drive cars from here and place in storage at other points. Few cars on hand throughout state. None here. Demand greater than supply."

Dr. W. G. Langley, Franklin Motor Car Co., Franklin distributer: "Only few cars ready for delivery, demand too great for supply under conditions of shipping. Strike will greatly hinder business."

Fifteen other dealers when seen regarding the situation expressed similar views. It is impossible to get an estimate of number of cars ready for delivery, but dealers say increasing demand will take present supply in 2 weeks. They fear in some instances disaster to their business. Texas is buying more cars than dealers anticipated.

DES MOINES, IA.—All dealers would be immediately hampered by a freight tie-up and many would also be forced to halt all business, according to C. Fred Claiborne, director of the Des Moines Motor Trades Bureau. A few dealers and distributers have a surplus of cars on hand.

The Chalmers branch is the best fixed with a stock of fifty cars and lesser numbers are on hand at the Overland, Paige, Saxon, Hupmobile, Hudson and Packard.

It is estimated that the total of cars now on hand in Des Moines is not more than 700, which is less than 2 weeks' supply for the spring season. Most of the dealers and distributers are totally unprepared for such a situation as would arise from an embargo. They already are oversold and awaiting shipments to fill orders already booked.

Among this class is the Marmon distributer who is still waiting for 9 cars sold this month. The same situation prevails also at the Cadillac and Oldsmobile branches and it is the general rule among all the distributers and dealers of the city. Deliveries would stop at once as most cars of the freight traffic would be halted.

Dealers and distributers plan to drive cars from the factories on their own power if freight traffic is stopped, and one dealer proposes to pay the railroad fare of buyers to the factory if they will drive their own cars home.

The tire situation is as bad or worse than that of the car markets. Distributers reported many sizes which they would be out of as soon as shipments failed to arrive for a single day and that they would be entirely out of all tires, within 30 days. They have no remedy to suggest for the threatened situation and believe it would be impractical to receive tires by motor truck shipment.

The gasoline situation is also bad with the independent companies already doing business from hand to mouth, a condition which has prevailed for some time, while the Standard Oil branch reports that its tanks are filled to the brim with a surplus which would take care of business for a month in the face of ordinary demands.

HARTFORD, CONN.—Dealers are not in the least worried even over the prospects of a complete embargo for the very good reason that embargoes have become a regular habit in this section of the country. While men engaged in other kinds of business have deplored the present conditions, the dealers have attended to their knitting and laid their plans accordingly. And they have planned well.

Hartford has but one railroad, the New York, New Haven & Hartford system, of which the Central New England, operating through the northwest section of the state and into New York, is a subsidiary. There is one line of boats from New York to Hartford, via Long Island Sound and the Connecticut River, service daily.

Navigation has been resumed which is most encouraging at this time. But the boat line is controlled by the railroad people.

Practically every dealer has planned to drive cars over the road from the Middle West, and while in good weather this is a very simple proposition at this particular time, it means something of a hardship. Some of the dealers have had sufficient foresight to stock up ahead of orders. Others have cars on the way to them. Express shipments have been common. Springfield, Mass., by reason of superior unloading facilities, is the rail destination for many of the cars that come to this city.

The tire situation looks very encouraging, and as for gasoline, there appears to be no immediate cause for worry. Now that the Connecticut River is again open to navigation, why, of course, tankers can come up the river easily, so there is the end of that.

Parsons & Co., Dort dealer, has a small stock on hand. Express shipments have come to Springfield at $225 a car. Arrangements have been made to run cars over the road from Flint.

The A. C. Hine Co., Chalmers and Oakland distributer, has done well on shipments up to date. Express shipments have come to Springfield and from there run over the road to this city. To save on car space the machines have come knocked down, a double-decked arrangement being used in the express cars. Shortage is imminent. Running over the road is regarded as the only solution and this is no new experience. This method will be resorted to if necessary.

George D. Knox, Peerless distributer, has a few cars on hand but these will be taken April 1 or shortly after. Cars will be run over the road as needed.

The Whaley Motor Co., Maxwell dealer, is fortunate. There are 59 cars in stock and more could have been had as 31 were released to the Stamford dealer. Cars have been stocked all winter. No fear of the outcome of the threatened strike is anticipated here.

The Elmer Automobile Co., Ford distributer, is prepared to run cars over the road. Ten dollars and fifty cents additional is added to the freight charge of $16 to cover the extra cost. There are hardly any cars in stock, the company reports. Six cars a day over the road is the limit and this will not supply orders for the next three months. Fords are selling fast. No more promises are made for April 1 delivery.

The Hartford Apperson Co., Apperson and Detroiter, will run over the road. Fifteen cars are to come out of New York branch and as more are needed they will be run over the road from Kokomo and Detroit.

E. H. Richardson, manager of the Thrall-Colton Motor Car Co., Kissel distributer, said, "There isn't anything we can do. We are tied up. It is 1500 miles to the factory. We

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have five cars on the way by express now. Two more carloads are ordered. We have six freight carloads on the way. We have only a few cars in stock. Cars on the floor are sold."

A. C. Rose, car sales manager of Brown, Thomson & Co., Cadillac distributers, said, "No arrangements have been made up to the present time. Cars have been coming through fairly well. If necessary we will run cars over the road from Buffalo as soon as the lake is clear. We did this at the beginning of the 1917 season. Many of our customers were glad of the opportunity to go to Buffalo and drive their cars home."

The Hartford Buick Co., Buick distributer, is fairly well stocked and some time ago arranged for shipments overland because of the poor freight service. The strike, if it does come, will not therefore create a new situation here and in no way interfere with previously laid plans.

Bardnard & Beeman, Oldsmobile, have few cars in stock. Forty are to be delivered early in April. These will be run over the road if New York cannot help.

The Palace Auto Service Co., Inc., has arranged to have the Mitchells shipped by boat from Racine to Buffalo and then run over the road to Hartford. From Buffalo to Hartford is an easy two-day trip of 460 miles.

'We will go out to Detroit and get them," said D. A. Harrington, Harrington Hudson Co., Hudson distributer. We think we will have to go after them anyway because shipments have been dropping off. In January we received 31 cars, we should have had 36. In February we got only 17 cars out of 48 ordered. Up to the present time this month we have had six cars. This month's schedule calls for 35 cars. The factory wired 'no more shipments by rail until further notice' so the strike situation does not alter our plans previously laid. It is merely a case of how soon we will have to drive cars over the road." There are 16 Hudsons in stock.

The Colonial Automobile Co., Studebaker; four counties of the state, with 16 sub-dealers has 25 cars in stock. Arrangements are complete for overland delivery. The company is not at all worried.

The Harry Starkie Auto Co., Chevrolet, has 60 cars sold for early delivery. Only one-half of this number is on hand. Cars have come over the road from Tarrytown all winter and if need be men will be sent to Flint for them.

George H. Gabb, Smith-Form-A-Truck, is likely to be hard hit as the attachments have no front wheels nor power. Plans are being considered to use a five-ton truck and running it from Buffalo at a rental of $30 a day. The trip would take nearly a week. No attachments are in stock, although a trainload is on the way somewhere. The situation here is very bad because orders are numerous.

W. N. Barrett will run Metz cars over the road from Waltham as he has done in the past. Boston will be able to care for him on the Jackson for a while at least.

"Not in the least worried, we will go out to the Paige factory and get them," said Edward S. Clark, Paige-Detroit distributer. "The situation is not new. We had it last year and we can do now as we did then, go after the cars." There are few cars in stock here.

"The situation is serious enough from the outside," said W. H. Vinal, sales manager for Russell P. Taber, Inc., Reo distributer. "We have already laid plans to meet a far more serious situation. If it is within the realm of human possibility we mean that the customers who have favored us with their business shall receive their Reos this spring. Mr. Taber will be in Lansing and will remain at the factory to see that cars leave over the road for Hartford. We are determined in this manner to obtain as large a proportion of our allotment as we can get. The only limit will be the human one, that is the ability of our drivers to keep on driving as long as they can."

Hartford isn't worrying. It is used to tie-ups. Indianapolis is within driving distance of most of the factories.

The Universal Auto Co., Franklin and Scripps-Booth, have enough cars on hand to fill orders for a while to come, having stocked up all winter. Special color jobs will be delayed and will be driven over the road, weather permitting.

The Britton Co., Stearns-Knight, will, if necessary, run cars over the road. Fair stock on hand is reported.

The R. D. Britton Co., Allen and Velie, has 61 cars in stock, having taken them as fast as the factory could send them for the spring trade. Half of this number is sold. No necessity for road driving is anticipated, but if necessary will be resorted to.

The Capitol City Auto Co., Winton, Ben F. Smith, general manager, said, "In case of a serious strike we will run cars over the road. We have 11 cars to deliver within the next ten days or lose the business. We will go after them and be back in Hartford within 4 days. If the trains are not running we will drive out in a car intended to be factory overhauled and bring back the new ones."

The Locomobile Sales Co., Locomobile, is not seriously concerned, as Bridgeport is but 56 miles away.

The Detroit Electric Car Co. can, if necessary, run over the road from Detroit, as charging stations are frequent along the line. There are few cars in stock.

The branch of Willys-Overland, Inc., is well fixed. There are 70 cars on hand. Fourteen carloads have just come in. Ten of these have been unloaded and three more carloads have been placed. Prompt delivery of all models can now be made. It is not thought here the strike will last long enough to necessitate overland shipments.

S. A. Miner, Pierce-Arrow distributer, will go over the road if necessary, which is a practice common here. If passenger service quits men will be sent out in cars to the Pierce factory. It was intended to do this anyway, regardless of the strike. It takes freight a week under favorable conditions.

The Hartford branch of the Packard Motor Car Co. of New York had six cars in stock. Shipments come direct. Over the road delivery is regarded as inadvisable at this time. New York may be able to supply a few cars.

The tire agencies are well stocked. The Universal Auto Co., a leading supply house, the Auto Tire Co., the Britton Co., the Gunn Rubber Co., United Cycle Co., are well cared for. The Goodyear branch is in good condition, so is the Firestone, Fisk, Goodrich and United States. Goodrich will, in event of a strike, make use of trucks coming from New York. The tire situation is very encouraging, all things considered. The Fisk factory may be reached by truck. Goodyears may be received in like manner.

From information given out at the Standard Oil offices, there is enough stock of gas for a two or three weeks' seige. The Texas company can use boats and so can some of the other refiners. With the exception of the Standard, all companies are within pipe-line distance of the docks. No rise in price is expected though there is a possibility of a jump.

Car dealers who have storage facilities have stocked up sufficiently to last them for two weeks or more. As an example one large car distributer stocked up Friday with 1500 gallons. Salesmen are not expected to use cars any more than is absolutely necessary for demonstrations. The river route is the town's salvation from a fuel standpoint. While for obvious reasons the name of the company may not be mentioned, it is well to state one refiner last year had pipe for a line engaged to extend from the docks to the tanks and if necessary this one concern alone can bring enough fuel to the city to meet all requirements, including the crude supply for the factories. Immediately the strike is on, the tankers will start for Hartford and the pipes laid.

INDIANAPOLIS—Motor car manufacturers and dealers feel fairly certain that they will be successful in meeting the unusual conditions that might result from a tie-up of traffic until rail service is restored. No radical changes in business policy have been undertaken to meet the threatened situation. Leading men in the automobile industry stated that unless the strike lasts over a considerable period that business will not be affected seriously.

For several weeks Indianapolis manufacturers have been shipping the outputs of their factories overland, and most of the deliveries to Indianapolis have been made in this way. The factories report that they have supplies on hand to keep their plants in operation for several weeks, and that their shipments will not depend on the movement of freight cars.

Joseph M. Bloch, secretary and general manager of the Gibson Co., Indiana distributers of Overland cars, did not view the situation this afternoon with alarm.

"I was in touch with the Overland factory yesterday afternoon," he said, "and I was told then that the factory is preparing to ship a large number of cars overland. The factory has been driving many cars to us and I was told that about 200 would be delivered next week in this way. The factory told me in case of a strike that it could remain in full operation for at least 2 weeks.

"Our accessory business probably will be affected in case of a long strike, because it would be impossible for us to make shipments. Yet it must be remembered that a remarkable interurban system operates out of Indianapolis to practically all of the leading cities in the state, and this system could be used by us in delivering orders."

The Hulett-Law Motor Co., Hudson distributer, announced that it would not be affected seriously by a strike for the company keeps a large supply of cars on hand.

"We have not been driving many cars through from the factory," a representative of this company said. "Although overland deliveries have been made to dealers in other parts of Indiana, we have had such a large supply of cars on hand that we will not be inconvenienced seriously. The dealers are accustomed to driving their cars from the factories by this time, and I do not believe that a complete freight tie-up would cause any immediate inconvenience to any one.

"When you come to consider conditions, the Indiana automobile trade will be luckier than the dealers in many other states. It is

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an easy matter to drive cars into Indiana from Ohio, Michigan, Illinois or from the great manufacturing centers. The same holds true in the gas situation. There are refineries in this state and in Illinois and deliveries cauld be made by trucks. The large automobile tire industries of the world are not far distant from Indianapolis and in case of a show-down tires could also be delivered overland."

The supply of gasoline and oils in Indianapolis is said to be sufficient to make a full supply for 10 days or two weeks. In case of a strike lasting that long the situation relative to gasoline supply might be felt first and might cause some inconvenience.

KANSAS CITY, MO.—A railroad strike would find Kansas City without a supply of motor cars sufficient to handle a single month's trade. A few firms have stocks on hand beyond immediate needs, but some are sold up to the limit, and most of the others admit that a couple of weeks would see their last cars gone. Few have made special plans to meet a possible emergency.

Following are various courses of action to which various firms will resort: Grin and bear it. Bear it. Drive from the factory, and drive to the territory. Get overland what other branches or dealers can spare. Ship in by boat, over Mississippi and Missouri rivers; ship out by boat, on the Missouri. Bring from factories or other branches by trucks; ship out on trucks.

Dealers are divided as to the advisability of driving overland, and some insist that they would not resort to that expedient except in dire extremity. The shortage in cars that already exists has somewhat lessened the anxiety of some dealers over a mere aggravation of the difficulty.

Some of the dealers reported as follows:

Allen and Jackson Motor Co.—200 cars in stock. Can make deliveries for 60 days. Will not drive.

Apperson—125 cars in stock. Can make deliveries for 30 days. Have not considered driving.

Buick—No cars stored. Already driving.

Cadillac—No cars stored. Won't drive.

Chevrolet—Sold out. Will ship from St. Louis by boat.

Elgin—30 cars in stock. Can deliver for 30 days. Arrangements already made for driving.

Franklin—5 cars on hand. Supply good for 10 days in some models and will drive.

Ford—Has complete parts for about 1500 machines at assembling plant. One-third of output now being driven out.

Haynes—Out now except on one model that will last 30 days. Now driving from factory.

Hathaway Oldsmobile—No cars stored and will drive.

Hudson-Brace—100 cars in stock. Can deliver for 40 days. Does not consider drive practical.

Maxwell—Making 30 cars a day. No made-up stock on hand. Will drive if necessary.

Paige—Have one month's supply. Will not drive.

Packard—10 cars on hand. Will make effort to drive.

Stutz—14 cars in stock. Will drive.

Kansas City would be hard hit for cars and car supplies. Louisville would try to drive overland.

Velie—100 cars in stock. Can deliver for 30 days. Will ship by barge from factory at Moline. Will also drive if necessary.

Jeffrey—P. J. Downes & Co. have just received a trainload of sixes now in the yards at Kansas City.

Kansas City has several refineries, some of them being supplied with crude oil by pipe line. There will be no trouble for gasoline, and supplies can be sent to the immediate territory by motor truck. Kansas City has also several factories which turn out tanks and can make tank cars if necessary on short notice.

The Firestone Tire Co. is well stocked with tires and its dealers also have good supplies. The Fisk Co., while not having a large supply, reports its dealers responded even more liberally than usual to the special offer as to early shipments and the territory is unusually well supplied. The Goodrich Co. is in the same situation as to the supplies in dealers' hands.

Few firms handling trucks have any large stocks.

The H. A. Dougherty Motor Co. is an exception. It has 93 Republic trucks that arrived in Kansas City March 17, a trainload, in addition to trucks coming in smaller shipments.

The most serious anxiety is felt by garagemen and accessory dealers, on the subject of supplies. They must keep the cars going that are now in service, and needed. While some accessory and parts dealers have considerable stocks, most are very short on many items, and would be up against it hard in case of a long-continued tie-up of freight traffic. The factories are too far away, in most cases, to admit of shipping by trucks. Several shops are equipped to make parts, but the garagemen admit that they could at best merely tide a car owner over.

One parts dealer said that in case of extensive suspension of freight traffic, the mails would doubtless be operating, and parts now sent to dealers by freight or express would be adapted, as to reduced numbers, to parcel post shipment.

Truck dealers, and dealers in the equipment with which trucks are made from passenger cars, are in the same shape as other dealers; there are light stocks on hand, but worse off, in that there is little chance to get them from the factories. One make-a-truck dealer said that if necessary he could get trains of five or six overland, and would do so.

The truck men, however, are most interested in the possibility of putting the trucks to work to care for freight traffic. A. A. Johnson, manager of the Knox tractor agency, has only one on hand. He suggests that any railroad strike would be of such uncertain duration that it would hardly be feasible to make contracts and arrange for freight lines.

The truck dealers and branch managers are in close touch with their customers, and could easily assist in organizing freight service. Newell Lyon, manager of the White branch, suggested this possibility. The H. A. Dougherty Motor Car Co., which received a trainload of Republics, has more than 250 trucks in use in Kansas City, many of which could be used in interurban freight service.

Tractor men are naturally interested in these possibilities, too, though the slow speed of the tractor is a disadvantage, both for hauling freight and for overland delivery to customers. But some of the tractors, if badly needed for spring work, could be delivered on trucks.

W. H. Wallace, Jr., manager of the Motor Transportation Co., dealer in Chase trucks, operates a truck freight line between Kansas City and Independence, nine miles, on railroad freight schedules. He is preparing, if necessary, to gather a fleet of trucks, to put into interurban freight service. He is widely acquainted with truck owners. He has estimated that railroad rates might be charged up to 25 miles, and that regular service could be established up to 60 miles at rates that would not be prohibitive.

D. S. Graham & Son, Oak Grove, Mo., are also demonstrating the feasibility of truck lines; they make one, sometimes two, trips a day, 35 miles each way, with live stock inward, miscellaneous freight outward, with their Republic trucks. Propositions had already been made, because of the freight car shortage, to put some 25 trucks into freight work in Kansas City territory, and the present crisis probably will cause more serious consideration of the project.

LOUISVILLE, KY.—Most dealers find themselves with no cars stored and few machines to sell. One of the immediate results would be the closing down of the local assembling plant of the Ford Motor Co. Parts used in the assembling of Ford cars are received from Detroit and, as only a limited amount of material is on hand, it would be necessary to close the plant down within a few days, according to manager Clarence Banks. The concern employs 225 men, who would be thrown out of employment temporarily. The daily output of the plant is 72 cars, these supplying dealers in Kentucky, Tennessee and Alabama. Cars are shipped out as fast as they are assembled.

Some sizes of standard tires are already exhausted and tire men predict that if all shipments except food and livestock are tied up for a month or two, owners would be unable to replace standard tires in popular sizes. While gasoline may not be difficult to obtain, those who keep in close touch with the automobile situation expect a big increase in price. The fuel has been selling at the

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filling stations for 22 cents a gallon during the past week and an advance of 1 cent is scheduled for this week. Even if freight shipments are suspended on the railroads, gasoline could be shipped in by boats plying the Ohio River.

If the factories in Michigan, Ohio and Indiana are fortunate enough to have material on hand to enable them to turn out cars, Louisville dealers announce their intention of sending demonstrators, salesmen and mechanics to the cities where the plants are located and have them drive the new models to Louisville, as some of them have been doing since the freight car situation first became serious.

Few cars are stored in local warehouses. The dealers declare most of these models are sold and the remainder would be purchased within a week. Many Louisville dealers have orders for every car they have in stock. Great difficulty has been experienced in getting new models. The shipments from Detroit and other Northern points have been from several days to three and four weeks late in some instances.

The Standard Auto Co., Cadillac and Reo distributer, has fourteen cars on the road and if they arrive before traffic is tied up, Clifford Alderson, manager of the concern, expects them to be sold in two days. According to Mr. Alderson, his company has been putting an empty barrel into a freight car after unloading a shipment of automobiles and returning it to Detroit. The freight rate is about $25, but the factory, he says, stands half the expense on the returning freight car.

Hite D. Bowman, agent for Chalmers and Pierce-Arrow cars, announced his intention of instructing the factories to ship cars to him by express in the event freight traffic is tied up.

MILWAUKEE, WIS.—Milwaukee considers itself fairly well fortified against demoralizing shortages of cars and supplies. While car stocks are below normal for this period, due to the acute congestion of traffic for several months, not much difficulty has been encountered in supplying the demand, which is rather light because of unfavorable weather conditions.

A week's strike and a week's favorable weather would create a demoralized situation. All dealers excepting representatives of Wisconsin and nearby factories have arranged to send drivers to factories as soon as the strike difficulty assumes a serious and extended aspect.

Gasoline and oil distributers, as well as tire companies, will not be caught wholly unprepared. Traffic congestion months ago taught them to look forward. At this time there is enough gasoline and oil on hand in Milwaukee to fill two to three months' demand, depending upon the weather.

The larger tire dealers have ample stocks. Factory distributers in Chicago do not keep large stocks, but have the advantage of boat lines and electric railways to keep goods coming. Many dealers stocked up on tires fearing another advance in prices, but some of these deliveries are just under way from factories.

Milwaukee has water routes.
Nashville would suffer.
Omaha would last a month.
Pittsburgh would soon have to
shut up its row.

NASHVILLE, TENN.—A cessation of railroad traffic would have found Nashville with a short supply of gasoline, a fairly large stock of some makes of cars and a scarcity of others. A number of dealers would have been compelled to close up until the strike was over.

A supply of a little over one weeks consumption of gasoline was on hand on Saturday. The manager of one oil company stated that he thought he could supply his regular customers for two weeks by careful management.

The suggestion was made by H. O. Blackwood, a leading service station owner, that in case a scarcity developed pleasure cars be retired temporarily from service and only trucks and other cars operating by necessity be supplied. Trucks, he pointed out, would be needed to take the place of railroad service in some instances.

The largest supply of cars on hand was that of the Cumberland Motor Car Co., which has 35 Dodge cars stored. This will last for several weeks. The Overland Nashville Co., Chester Motor Car Co., Chalmers dealers, and the Tennessee Auto Co., Studebaker dealer, are also well supplied, but the latter company has received word from the factory that shipments would be suspended temporarily. There is a scarcity of Fords on hand and a stoppage of freight movement would mean a large loss of business.

One tire dealer reports a large enough stock to last for three months at the normal rate, but others state that a break in shipments would mean a shortage in their lines. Accessory dealers are well stocked.

OMAHA—Omaha dealers would be in bad shape if a railroad strike went into effect. Very few have the normal supply of cars on hand for this season. Within 3 weeks the cars in storage here would practically all be delivered under normal demand. Driving from the factories would be resorted to by several dealers, of whom but three or four could practice this to any great extent. The only other emergency action contemplated is shipment by boat from Eastern factories to Chicago and Milwaukee, and driving cars from these points to destination. Deliveries of cars already on hand would proceed by driving from Omaha to the whole territory.

Tire supply stored is about normal and would last about 1 month. Delivery within territory would be made by motor truck; receipt of supplies from factories considered out of question under embargo. Other accessories in same shape.

Gasoline situation is very good. Large oil companies announce they have ample supply on hand in Omaha and Lincoln, and can deliver by motor truck for 2 or 3 months at least, under normal demand. Smaller oil companies would have to depend upon larger ones for supplies.

The existing freight car shortage is already responsible for lack of stored cars, as well as factory output. Some dealers may drive cars in lead color from factories and finish here. Assembled cars could not be handled under embargo, but supply on hand is quite large.

PITTSBURGH, PA.—A railroad strike would mean only one thing for the motor car business in Greater Pittsburgh—a tie-up. Every dealer agrees on that point. It is only a question of how soon the tie-up would be complete. Some say 1 day, some 1 week, others venture that it would take 10 days or 2 weeks to put a total quietus on the business. No one goes beyond the 2 weeks' period. And every dealer hedges his remarks by saying that it all depends on the weather. Sunshine and dry roads would make it easier to get cars from the factories, but would bring in the country dealers by the dozen and thus much more quickly exhaust the supply of cars here.

For weeks Pittsburgh agencies have been preparing for a railroad crisis. In addition to making extravagant efforts to get cars through by freight, they have patronized the express companies liberally. Many agencies have braved the weather with deep snows or mud hub deep and have driven in fleets of cars—from a dozen to 100 at a time. Their success in getting cars the past month or six weeks in this latter way is to-day their measure of endurance if the strike really comes to-night.

The Packard Motor Co. is one of the more fortunate ones. Sales Manager O. E. Vestal was in Detroit last week and got a shipment of 60 cars headed for Pittsburgh. Most of these are here now and the rest are located between Pittsburgh and Cleveland where they could be easily unloaded and driven home. "We could get along all right for two weeks," said Vestal. He added that at the Packard plant unusual preparations had been made for a strike and that the supply of raw material and coal was such as to make that company comparatively safe for a reasonable time.

The Peerless Motor Car Agency would be tied up in a single day, according to its officials. Every car that it has in sight is under contract. A bunch of Peerless drivers will go to Detroit tonight to bring over 20 cars the first of the week. For weeks this agency had been grabbing every car in sight owing to its splendid demand from buyers and it regards the prospects of getting out any large number of cars at the factory as very poor in case of strike on account of lack of coal and material.

In 1 week the Cole Motor Co. would be out of cars. This week this agency has brought in two car loads by express. "The situation looks serious," said one of its officers this afternoon, "and we would be up against the driving proposition without delay."

Avermann-Lynn, who handle the Hal and the Chandler cars, have about 40 cars on

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hand and could stand a siege of perhaps 2 weeks. They report that it is impossible to get any Ohio cars through on the railroads this week and a strike would only emphasize the necessity of driving them over.

The Eddie Bald Motor Car Agency, Hudson, has had unusually good success the last 2 weeks with the freight traffic people and these shipments have put it in fairly good shape. "We are good for 3 weeks at least," said its manager today.

One of the lucky agencies here is the Oakland Motor Car Agency, which took time by the forelock, dared the snows and mud and brought over more than 300 cars since Feb. 1. In one fleet there were 116 cars. Even with this start the Oakland people, according to their own statement, would be out of cars in 2 weeks at the most. The Dodge Bros. Motor agency has been driving a large number of cars in also the past few weeks and has not depended on the railroads to any extent lately.

"We have had nothing from the railroads for two weeks," said the Haynes manager today, "except one car load by express. The largest number we have driven in at one time was sixteen. We could probably get along fairly well for 10 days or 2 weeks if the weather and roads keep as they have been all this month. But if a few days of sunshine dries up the roads the country dealers and customers who have ordered cars and have been waiting for good conditions to get them home would clean us out in a day or two. At present the Haynes stock here is about 70 cars."

In 2 days the Buick people estimate that they would be without cars in the event of a tie-up. They are all sold out practically. Lately this agency has been getting in cars by express, but they look for a stopping of these shipments also if a strike comes.

Another agency which is sold right up to date is the Chevrolet. Everything in the automobile line is extremely scarce, they say, and there will be nothing left for dealers to do but to drive in cars as best they can. Like all other Pittsburgh dealers they have been doing their best to accumulate a stock the past few weeks by any and all methods but current demand has been unusually brisk.

The Buick Motor Co. reports that it has less than 50 cars in stock. This is barely 2 days' supply. "Then we would be tied up tight," said its manager. "A 2-day strike," he added, "would disorganize the automobile business for a month even if the strike were ended at the close of 48 hours."

From the W. W. Bennett Motor Car Co., which handles the King 8, it was learned that one car load of Kings is due today and that they have been getting in some cars by express already. Demand would overlap the supply in a very few days and the only recourse would be to send drivers to the factory and bring the cars in overland, they say.

The Briscoe Motor Car Agency has just about a day's supply of cars on hand today. Orders are fast and plenty and the last carload it received by freight was three weeks late. It figures on a 3 day drive overland from the factory at Jackson, Mich., and an expense for bringing in the cars overland of approximately $10 more than the regular freight charge. Like other dealers, however, driving them in would be their only way to satisfy current demand next week, and they are hoping for the best but preparing for the worst.

One feature of the situation is slightly in favor of Pittsburgh agencies. This is that since Feb. 20 the weather has been bad and the roads almost impassable off the pikes on account of deep snows, floods and spring thawing. These reasons have kept country branch dealers as well as country buyers from coming to Pittsburgh for their cars. Hundreds of them are expected in next week, however, as the big Show opens tonight at Motor Square and at the Hotel Schenley and if the weather man should produce sunshine practically every one of these cars would be out of Pittsburgh by next Wednesday.

San Francisco worries more over tires than cars. St. Louis has tires and gas. Syracuse has small stock and dislikes drive-aways.

Pittsburgh dealers are not greatly worried over the gasoline and oil situation. They have great reliance in the Gulf Refining Co. and the Atlantic Refining Co., the two big distributers in this territory. Many dealers do not carry gasoline at all. Those who do carry usually only about a week's supply. But their main worry is cars.

An official of the Gulf Refining Co. said this afternoon: "There would be no cause for worry about the gasoline or oil situation in this city for at least two weeks. The refineries have been looking for a real crisis in the railroad situation this time for months and they have prepared for it just as far as possible. The business here is in a good healthy condition and there would not likely be any raise in prices during a comparatively short strike. Some dealers who have large storage capacity may have two weeks' supply of gasoline on hand, but the average dealer depends on the distributing stations entirely."

As to tires, Pittsburgh is not so badly off, meaning that somehow her automobile public could stand the inconvenience and get along for a few weeks. Stocks of tires here are reported to be short. Popular sizes are well sold down. In odd sizes and lots there is a good stock on hand. Tire dealers anticipate that if a strike comes tonight they will resort to express shipments, as many of them have done lately, and if they fail it would be a case of hire trucks and drive to the factories for their stocks.

According to Stewart & Miller, who have the Miller tire agency here, the popular sizes, especially 34 x 4, are very low in stock. "We are in pretty good shape for stocks in general," they said, "and we have lots of tires on the road. A strike would cause all dealers' stocks to be depleted very quickly."

SAN FRANCISCO, CAL.—The majority of San Francisco dealers claim they have enough cars in warehouse to satisfy spring demand for about a month. Ford, Buick, Dodge and Studebaker appear to be in lightest supply, and these dealers would be first to feel effects of railroad tie-up.

Dealers are more worried about shortage in tires than cars. Many of the tire branches report being out of the popular sizes and have large back orders to fill.

There is no fear of gasoline scarcity, as California produces it in large quantities, and it can be easily delivered from the producing points to the distributing centers by the huge motor tank wagons that the oil companies are using.

ST. LOUIS, MO.—St. Louis is well prepared as far as tires and gasoline are concerned. The Standard Oil Co. has a refinery on the Illinois side of the river, which obtains supplies from the Oklahoma fields by pipe line, and the refinery has ample capacity for the local use and as wide a field as can be reached by motor distribution. The independent dealers figure they have a week's supply of gasoline and a longer supply of oils. The Standard Oil can care for oil wants.

Tire men assert that their stocks are ample for a long siege, both for pleasure cars and trucks.

The truck dealers through advertisements are assuring business men that they can meet immediate wants in trucks for the present. They evidently are anticipating a lively demand for trucks, as trucks can be used to haul coal here from nearby mines, also for food collection and distribution.

SYRACUSE—In case of a complete tie-up on the railroads dealers estimate that they can stand the strain about 2 weeks.

There are in storage in this city approximately 700 cars. Part of this supply came in prior to the show and the rest have been coming along in small shipments, some by express and some by freight.

Of the twenty-eight dealers in this city, the following ten have the greatest number of cars in storage: Reo Sales Co., Chalmers-Syracuse Co., Stowell Motor Car Co., W. R. Shaw, Overland-Syracuse Co., Genesee Motor Car Co., H. Barcroft White Corp., Syracuse Buick Sales Co., Syracuse National-Scripps-Booth Co., Syracuse Motor Car Co.

That these dealers have a good supply of cars on hand is due to their observance of the early warning that there might be shipping trouble and early orders would be the wisest policy. Within the past 2 weeks extra efforts have been made by dealers with the co-operation of factories to get as many more cars through as possible.

The Chalmers-Syracuse Co. paid the high express charges to get several carloads of five-passenger and roadster models of the Chalmers. This consignment was followed by two carloads of seven-passenger Chalmers by freight. This last shipment was a pleasant surprise.

Should a railroad tie-up last more than 2 or 3 weeks, Syracuse dealers would have to bring cars over the road either from the factories or receive shipments from boats on the lakes and drive them over the road from Buffalo to this city.

There are few dealers in this city who will undertake the problem of driving cars over the road at this time of the year, for the reason that they estimate that it costs nearly $150 per car to make these long trips over roads in the condition that they are now.

Cars can be brought from Michigan now over a route from Detroit or Lansing to Toledo, Ohio, Cleveland, Erie, Pa.,

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Buffalo and Syracuse. The roads are open over this route, but between deep mud and snow, the task is a difficult one.

NEW YORK—With little or no reserve stock accumulated the great majority of the New York distributers and the sub-dealers dependent on them would have been stranded in the event of a railroad tie-up. Buick, Hup, Dodge, and Reo reported no unsold cars on hand when interviewed to-day, and very few cars of any sort. All dealers now state that they are behind orders.

Haynes this week-end has about 300 cars on hand, Studebaker 100, Maxwell less than 100. Sub-dealers are coming in every day asking for lots of five or more cars each, some wanting as many as thirty at a time. To meet the emergency Studebaker had chartered two ships to carry the cars to Buffalo from which point they would be driven overland. Franklin was not worrying as its factory is in Syracuse, N. Y.

The tire companies were all well protected. Fisk is carrying a stock of 5000 with frequent shipments from Springfield, Mass. Goodrich has 40,000 on hand, Firestone 10,000, and United States 12,000 with frequent shipments from Hartford, Conn., and Providence, R. I.

Most of the dealers did not regard "drive-aways" as a likely remedy since the spring thaws are now due. The local Dodge distributer said that the company was making no plans as it regarded a railroad strike as impossible.

BLOOMINGTON — Dealers have enough cars on hand to take care of the trade for 2 weeks. There were 500 cars on hand. A large proportion of these have been sold for delivery April 1 or later should weather conditions be unfavorable. No dealers have been driving cars overland since March 1, due to a satisfactory supply on hand. One firm, T. K. Hays, receiving two consignments of 25 cars each from the Buick factory during February, has leased two Palace horse cars and will hereafter use these in moving motor cars from the Flint, Mich., factory to Bloomington. Other dealers are considering similar action and, if the cars can be secured, will abandon the overland method. There appears to be no shortage of tires or gasoline. All of the dealers are well supplied with accessories, and the wholesale distributers have large stocks. There are two oil companies here, the Standard and an independent. Both have huge tanks with a supply adequate for one month and there is no danger of an immediate shortage. Bloomington is also fortunate in being the center of the Illinois Traction system, an electric line which extends to St. Louis on the south and Danville on the east. This line carries freight and, in case of emergency,

New York has no way out.
Bloomington fixed for 2 weeks.
Los Angeles long way off.
Seattle and Denver too far for drive-aways.
Boston show cleaned out cars.
Minneapolis finds relief in 7 feet of snow.

supplies required here can be obtained from St. Louis. As a result, the strike has been viewed with composure by dealers in this section, and would have little, if any effect upon the industry here.

LOS ANGELES—A tie-up by the railroads would put all but one dealer here out of business within 30 days, so far as the sale of new cars is concerned. The one exception reports enough cars on hand to meet the demand for 60 days. Express shipments are prohibitive in cost; driving cars from factory prohibitive because of distance. Factories are offering to store cars specified by dealer at point of origin at dealer's expense. This would permit dealer to earn extra discount for accepting full quota, but affords no relief otherwise.

Possible routes suggested are over Canadian railroads to Vancouver, B. C., thence by boat, or down the tributary rivers of the Mississippi to that river, to the Gulf, through the Panama Canal, and up the Pacific Coast.

Truck dealers are fairly well stocked. Several carloads of tires are now delayed by snow blockades and traffic congestion in the Middle West, and therefore the dealers are short in tire reserves.

SEATTLE—The threatened railroad tie-up would have demoralized dealers here. Practically no cars are in storage for spring delivery. The majority of distributers are depending solely on railroad shipments as distance makes driving from the factories impracticable.

DENVER—Four out of twenty leading distributers in this city are well prepared to meet a freight tie-up. Four more are supplied for the next two to six weeks. The remainder are practically sold out. The biggest lot in storage is 425 cars held by the Carter Motor Co., including King, Saxon, Dort, Chevrolet and Grant lines. There are 100 new Chalmers cars in storage here. Mitchell and Winton feel safe for two months. The Overland branch has 400 stored and in transit, but 6 weeks will take the total. Maxwell, Studebaker, and Haynes have enough for four weeks. Oldsmobile, Cadillac, Hudson, Dodge, Buick, National, White, Cole, Franklin, Ross, Jackson, Elgin, Interstate, Packard, Hupmobile, Metz, Lozier and others are sold out. The tire and gasoline situation can be handled for a month or so anyhow. The Ford assembly plant has enough supplies here to run only 2 weeks or less.

BOSTON—An embargo on motor products would leave Boston very badly off. The dealers have not got very many cars here now, as following the show they delivered quite a number. Some of them have cars in storage, but they are cars that have been sold, and the owners do not want to take delivery until after April 1 as that is the day the assessors make their rounds to tax personal property in a lot of the places adjacent to Boston. Some of the New England distributers are cleaned up and they would willingly pay for express cars to get some shipments. A few of the dealers have received trainload shipments a couple of days ago, but not many.

If all the dealers in Boston averaged up their stock it would be found that they had less than a dozen cars each on hand now. Many of them have used cars taken in trade, and with the used cars they could do some business for a few weeks.

The tire companies have stocks on hand now to last a few weeks, because the real touring season started, but once a rush began they would be cleaned up. The oil people get some of their supply by water, and so they would not be so badly off, but there is not enough in the city to last for more than a couple of weeks.

MINNEAPOLIS—The automobile situation is complex as far as storage and spring distribution is concerned. Whatever eventuates in the railroad situation the immediate results will not be appreciable in its effect on distribution. Seven feet of snow has fallen in this territory this winter, a record precipitation. Because of this motor cars cannot be used except on paved streets until April 15 at the earliest. Automobiles cannot be driven in from the factory, cannot be driven out by dealers and those already ordered cannot be used by the consumer-until the snow leaves.

While the percentage of cars in storage here is probably much lower than last year, there may be more cars here because all distributers ordered more machines than usual expecting a record sales year of some 100,000 machines in the territory.

Storage figures fail to give a good average because it is spotted. Chevrolet has less than 100 cars stored, but the dealers are pretty well fed up with cars, so a delay in shipments from the factory will make little difference for some time.

Overland, Studebaker, Buick, Mitchell, Dort, are some of the lines which are reported in fair condition as to storage. On the other hand experts say the storage of cars is lower here than at any time in the city's history.

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Maxwell people have several carloads of parts on hand for their temporary assembling plant here. The situation was sized up six months ago, so that due preparation was made against the present probability of further freight car shortage.

Some of the managers of branch and distributing agencies have been able to get an edge on the situation and will fare better than some of their competitors. One factor in favor of several lines is the situation of their factories. Wisconsin, Indiana and Illinois factories are able to get cars for shipping automobiles here better than the Michigan plants.

One reason is that western railroad lines are willing to arrange for cars for factories in their own territory and another is that these factories have arranged to load the empties back with flour. From Detroit it is reported shipments are pooled by the factories and allotted among the different lines here. Branches that get cars today do not get any tomorrow.

Gasoline men believe they can run at least 30 days on present stocks. The Standard Oil company could be able to take care of trade at least three months and the independent companies estimate supplies of from three to six weeks.

A census of tire branches and distribution agencies shows stocks are good for the present weather. If the driving season opens before freight traffic is resumed there will be a sharp shortage. From thirty days down to three weeks is the estimated time stocks would last.

PHILADELPHIA — Even without a strike the situation is precarious with respect to the number of cars on hand.

At present few dealers or branches are able to meet the demand for spring delivery and the number of cars actually on hand is, in almost every case, insufficient to meet requirements. While practically everybody had foreseen the situation and had ordered heavily from the factories, the railroad congestion and the embargoes which have been in force in some sections has held back deliveries in some cases as long as eight weeks.

In the case of an emergency most all dealers here planned to use the great lakes as far as Buffalo and drive away from there. Others planned to use a through overland route as soon as the roads were in favorable condition. The traffic men and salesmanagers of the following agencies and branches were interviewed with these results:

Paige—About 60 cars in stock. These will last until the middle of April at the present rate of orders. Bigelow-Wiley had expected to store between 200 and 300 cars, but could not get them.

Mitchell—Has enough to last for the spring demand. Driving cars every day from the warehouse in New York.

Reo—Sold completely up to 30 days ahead with no cars in stock. In emergency this agency would drive from Lansing to Detroit and from there by boat to Buffalo. From Buffalo the cars would be driven to this city.

Overland—Stock is large enough for three months, but for wholesale only sufficient for two or three weeks. Harry Greenwood proposes to drive direct from Toledo.

Firestone—This stock is sufficient for about 30 days only. If the embargo stays on this branch proposes to bring tires from the factory at Akron by motor truck and express.

Oakland—Sold well ahead. Sales are in excess of the factory allotment. The southern territory controlled by the agency here is seriously handicapped from lack of cars, and there is not enough to take care of the spring trade.

Liberty—Not urgently in need of cars and at the present rate cars are being received there will be enough for spring business.

King—Stock is well cleaned up and there are very few cars on hand. Have nothing ahead for spring deliveries. If conditions grow worse the agency plans to drive from Buffalo to Philadelphia.

Hudson—Situation regarded as serious in any event. Quite a number of cars on hand, although limited. J. E. Gomery would drive direct overland from Detroit to Philadelphia, by way of Cleveland and Pittsburgh.

Chalmers—Stock on hand sufficient only for about 10 days. Good business last month helped to clean up some of the stock which was preserved for spring trade.

Cole and Grant—L. S. Bowers is warehousing as many cars as he can get in Indianapolis. The policy of this firm is to stock up cars in February, but owing to the lack of transportation facilities the stock has been kept down to a minimum. Cars on hand not enough to meet requirements.

Haynes—Oversold by about 100 cars. A railroad strike would leave the agency with five cars on hand.

Jeffery and National—Salesmanager Warner has two trainloads. There are enough to last into May and care for sub-dealers.

Cadillac—All of the few cars in stock are covered by actual orders and there is practically nothing for spring delivery except that to arrive. Many cars are on their way here.

Maxwell—Number of cars on hand good only till April 1. Mark M. Manship, manager of the branch, plans in case of emergency to use the roads, providing they are in good condition.

Owen Magnetic—Not troubled by conditions. Cars on hand will last about a month, but others are continually arriving. Orders are far in excess of the demand.

Dodge and Simplex—Thornton-Fuller have no Simplex cars in stock. This company drives them direct from the factory at New Brunswick as needed. The number of Dodge cars on hand is sufficient for 10 days. These are covered by orders.

Holmes Co. Elects Officers

CANTON, OHIO, March 17 — The Holmes Automobile Co., a charter for which was granted recently with a capital of $2,500,000, has been organized with Arthur Holmes, president and treasurer. C. H. Rockwell is vice-president; G. W. Belden, secretary. The executive committee consists of C. G. Herbruck, Arthur Holmes and C. H. Rockwell. The directors are: C. G. Herbruck, attorney; R. E. Bebb, president and general manager of the Canton Stamping and Enameling Co.; W. C. Laiblin, manager of the Canton Bridge Co.; V. K. Dodge, automobile distributor; G. W. Belden, Arthur Holmes and C. H. Rockwell, the two latter having been with the Franklin automobile company in Syracuse, N. Y. The product will consist of an air-cooled car and will be ready for sale in the spring of 1918. The location of the plant has not as yet been decided upon.

New Chevrolet New York Building

NEW YORK, March 19—The Chevrolet Motor Co. has leased the entire nine-story building at Broadway and 57th Street and will take possession October 1. The building will be remodeled and used as a salesroom and for executive offices.

Jordan Price Up $145

CLEVELAND, March 20—The Jordan Motor Car Co. has raised the price on all models $145. This makes the new price of the seven-passenger and sporting roadster $1,795, and the four-passenger sport model with wire wheels now sells for $1,895.

Two New Stewart Products

CHICAGO, March 19—The Stewart-Warner Speedometer Corp. has added two new products to its line. These are a new type of spotlight which will be styled Stewart-V-Ray Searchlight and a new type of bumper which will be styled Stewart Autoguard.

Equipment Service Association Formed

TOLEDO, March 20—The Equipment Service Association has been formed by service managers and representatives of eight of the largest manufacturers of electric lighting and starting systems. The object is to adopt a set of service reports and forms for service station work. A universal service report and method of returning parts was adopted by the companies that handle their service work through service stations. D. W. Burke of the Westinghouse Electric & Mfg. Co. is president of the association and R. A. Hall of the Electric Auto Lite Co. is secretary and treasurer. The next meeting of the association will occur in Atlantic City, Sept. 11 and 12. The companies represented are: Electric Auto Lite Co., Toledo; Westinghouse Electric & Mfg. Co., Pittsburgh; Bijur Motor Lighting Co., Hoboken, N. J.; U. S. Light & Heat Corp., Niagara Falls, N. Y.; Wagner Electric Mfg. Co., St. Louis; Dayton Engineering Laboratories Co., Dayton; Gray & Davis, Inc., Boston; ABC Starter Co., Detroit.

Pathfinder Is Recapitalized

INDIANAPOLIS, IND., March 19—The Pathfinder Co. has consummated a deal by which it has recapitalized for $5,000,000, and will greatly enlarge its plant and capacity. All of the officers of the company will retain their executive positions.

Peerless Increases Prices

CLEVELAND, March 19—The Peerless Motor Car Co. will increase its prices to take effect April 9. The eight touring car and roadster are each advanced from $1,980 to $2,000. The price of the sporting roadster will continue at $2,250.

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Look for $80,000,000 1917 Chevrolet Trade

Dividend Rate Put Up to 12 Per Cent—21,875 Cars Shipped Jan. 1 to March 10—Directors Elected

NEW YORK, March 20—The Chevrolet Motor Co. yesterday declared an initial dividend of 3 per cent, payable May 1 to stock of record April 20. Although not officially announced, the inference is that this places the stock on a 12 per cent basis. This makes the dividend rate of Chevrolet and of General Motors common the same. President W. C. Durant predicted a business this year much in excess of $80,000,000. This compares with $33,000,000 in 1916.

At the annual meeting yesterday it was announced that from Jan. 1 to March 10 of this year, the company shipped 21,875 cars, against 10,068 cars in the same period a year ago, notwithstanding the freight car shortage.

The company has $81,000,000 of business to look after during the 5 months following March 1. It has been canceling, for the past 5 months, from 5000 to 12,000 orders at the end of each month which it was unable to take care of.

President Durant announced at the meeting that the security holdings of the Chevrolet Motor Co. include 450,000 shares of the General Motors Corp. common stock carried at $134 a share, the bid price Dec. 30, 1916; 106,000 shares United Motors Corp. stock carried at $45 a share and 13,650 shares of Scripps-Booth stock carried at $42 a share, of which 2450 shares are held by the Chevrolet Motor Co. of Michigan. In exchange for the 450,000 shares of General Motors common, 434,000 shares of Chevrolet Motor Co. stock were issued at par. At the price of $134 per share for General Motors there is a profit of $16,900,000 on the transaction.

During the year there was an increase in assets of $73,722,087, of which $65,614,300 were increase in securities of other companies; $8,104,787 were increase in assets from operations.

Sales of cars in 1916 were 69,683, of which 50,048 were from sub-companies of the Chevrolet Motor, and 19,635 were from affiliated companies.

The sub-companies contributing to this output were the Chevrolet Motor of Michigan and of New York, as the Toledo Chevrolet Co. and the Chevrolet of Bay City, the other sub-companies were not producing on a large scale until the end of the year. The profit per car of the sub-companies was $82.22, the volume of business was $24,481,350, and the profits were $4,115,183.

The volume of business of the affiliated companies was $9,489,051, the proportion of net profit for the Chevrolet Motor Co. was $710,037, and the profit per car was $36.16.

The output in 1916 was 69,702, and the sales of cars were 69,683, leaving but nineteen finished cars on hand at the end of the year owned by the company.

Earnings from operating, exclusive of security holdings, were equivalent to 24.52 per cent on the original $19,754,000 capital stock of the Chevrolet Motor Co. A total of $3,613,521 was expended for construction and improvement to provide for increased output.

The book value of the stock at the close of the year was $148.63, and excluding patent account, contracts with affiliated companies, etc., which item will be written off in the near future, was $129.24. Net liquid assets in excess of total indebtedness was 106.45 per cent on the amount of stock outstanding Dec. 31.

The following board of directors was elected for the ensuing year: W. C. Durant, A. B. C. Hardy, W. C. Sills, Nathan Hofheimer, L. G. Kaufman, E. R. Campbell, R. H. Higgins, A. H. Goss, H. M. Barksdale, E. O. Wood, and J. T. Smith.

Many Companies Raise Prices

NEW YORK, March 19—Motor car prices have been quietly going up during the past 2 weeks, the increases ranging from $25 to nearly $1,000. Nearly twenty-five passenger car and truck prices have been raised to date, but it was expected that there would be a large readjustment to take care of the big increase in the cost of automobile materials. The present market conditions has been responsible for a quiet readjustment during the past 2 weeks and further increases are expected.

The following changes have gone into effect and others go in effect soon:

Car	Model	Old Price	New Price
Allen	5-pas.	$850	$895
Allen	5-pas.	$850	$895
Austin	7-pas.	3,750	4,000
Chalmers	2-pas.	1,230	1,250
Crow-Elk	2-pas.	825	845
Detroiter	2-pas.	1,195	1,250
Detroiter	5-pas.	1,195	1,250
Detroiter	Coupe	1,375	1,525
Detroiter	Det'ch. top.	1,398	1,550
Metz	2-pas.	545	600
Metz	5-pas.	545	600
Franklin	2-pas.	1,800	1,900
Franklin	5-pas.	1,850	1,900
Franklin	Coupe	2,650	2,750
Franklin	Sedan.	2,750	2,850
Locomobile	2-pas.	4,750	5,150
Locomobile	5-pas.	4,600	5,000
Locomobile	7-pas.	4,600	5,000
Locomobile	Limousine.	5,600	6,200
Loco. M-7	2-pas.	5,400	6,050
Loco. M-7	7-pas.	5,400	5,950
Loco. M-7	Limousine.	6,500	7,200
Paterson	2-pas.	1,095	1,195
Paterson	5-pas.	1,095	1,165
Paterson	7-pas.	1,095	1,195
Peerless	2-pas.	1,980	2,090
Peerless	7-pas.	1,980	2,090
Peerless	Coupe	2,700	2,750
Peerless	Sedan.	2,840	2,890
Peerless	Limousine.	3,350	3,590
Singer	2-pas.	3,500	3,800
Singer	5-pas.	3,500	3,800
Singer	7-pas.	3,500	3,800
Singer	Limousine.	4,600	4,750
Stutz	2-pas.	2,275	2,375

Eastern Illinois Show Draws From Large Area

Danville Show, Put On by Dealers of Several Counties, Ahead of Last Year—Prosperity Rules

DANVILLE, ILL., March 21—The Eastern Illinois automobile show, held this week in Danville, opening to-day, was marked by large attendance, running well over that of the first show held one year ago. The show here is unique in that it comprises dealers from a number of the counties of eastern Illinois and also attracts visitors from a large territory contiguous to this county. The Sanford building, selected for the show, furnished ideal quarters. One floor was devoted to pleasure cars, and the other to accessories, oils, etc. The car exhibits number 85, nearly all of the various makes being represented.

While the Eastern Illinois show comes somewhat later than most of the other displays in the West, yet the dealers believe that this is not a handicap and that the results will be fully as helpful as if held in January or February. Work upon the farms is not yet in full blast and there was a large attendance from the rural districts. Eastern Illinois is sharing in the general prosperity of the country and the dealers in this section believe that they will have a record breaking year in the sale of cars.

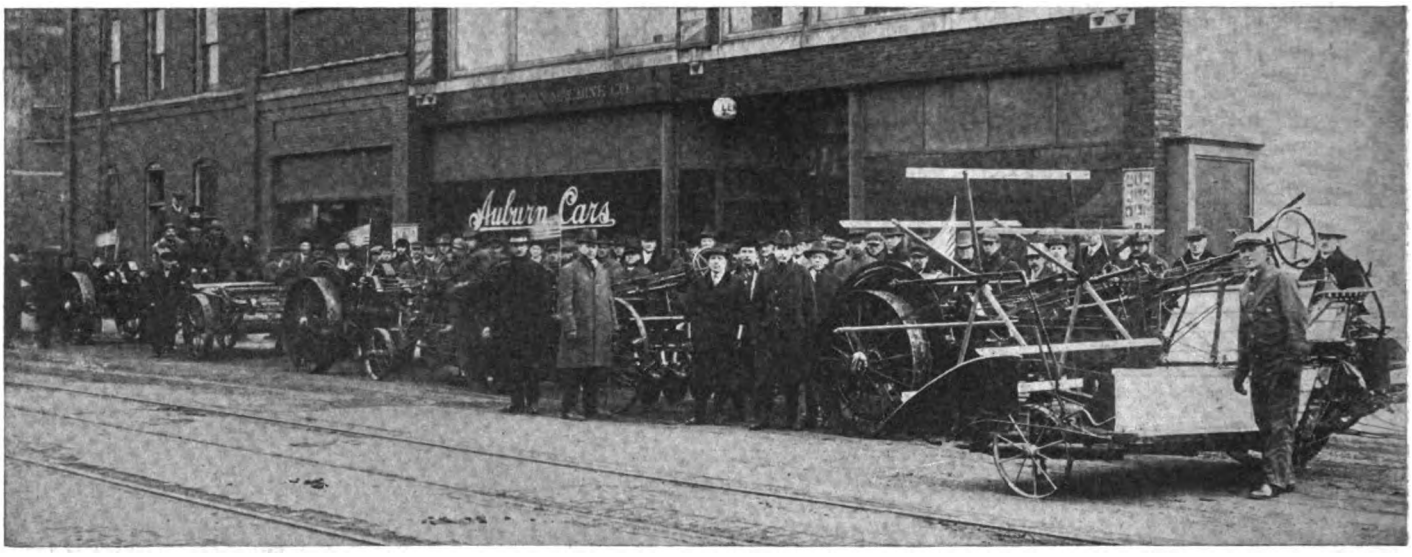
Dealer to Handle Airplanes

CHICAGO, March 17—The possibility of manufacturers selling airplanes and airplane parts by established motor car dealers is suggested in the incorporation this week of Thomas J. Hay, Inc., with Thomas J. Hay as president, George C. Norwood as vice-president, J. H. Quinlan as secretary, and George F. Friese, as treasurer. Tom Hay is the Chandler dealer in Chicago and the articles of the new incorporation include provision for sale of aviation adjuncts.

Chicago Plans Selling Race

CHICAGO, March 17—An innovation in speed contests is planned for the curtain-raiser of the Derby at the Chicago Speedway, June 9. This will be a 100-mile contest for pleasure cars, not special racing machines, in which each car is to have a fixed price at which it will be offered for sale when the event is over. A silver cup and medal will be the prizes. The Speedway Association asserts that among those in prospect are Mercer, Cadillac, Haynes, Hudson, Marmon, Packard and National entries.

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H. W. Newman staged his own tractor show during the Davenport motor car show. About 600 farmers visited his salesrooms and his outdoor exhibit where tractors were shown in operation hitched to various farm implements

Davenport Stages an Open Show

(*Continued from page 9*)

But the wealth of this district does not come from Iowa alone. Wisconsin, Nebraska, Missouri, and Illinois are good wealthy neighbors, and offer a wealthy market.

This sets the scene for the Tri-Cities —Davenport, Rock Island, and Moline. It has been the history of industrial development that the producers have followed the consumers. Hence we would expect to find the Tri-Cities a producing city, and it is.

In Davenport alone there are over half a hundred nationally known manufacturers, making everything from cigars and farm implements to corsets. In the Tri-Cities, seven leading manufacturers have a total capital of $104.-500,000. Two of these turn out $18,-000,000 worth of agricultural implements each year.

Besides being close to the market, the Tri-Cities are also close to the source of raw material. Coal, iron and steel are close at hand. Four trunk lines run to the cities. Chicago is only 180 miles away.

Water Rates Are Cheap

Water freight rates are always about 40 per cent cheaper than railroad rates. To take advantage of that fact, Davenport is building a river terminal on the Mississippi capable of handling freight efficiently between the boats and the industries. Sloping levees are being abandoned and modern docks with locomotive cranes are being built.

These river improvements are expensive, but are expected to solve the problem of cheap transportation and to again bring the Mississippi to its own. It was calculated that during the recent freight car shortage the saving in coal transportation costs alone would have paid for the river improvements.

There is also a water route connecting the Tri-Cities with Chicago and the Great Lakes. This is through the Hennepin, Illinois & Michigan and Chicago Drainage Canals. The central section of this waterway is at present filled, but $5,000,000 has been appropriated to make it navigable. This will tend to make the Tri-Cities still a greater distributing center for the West.

Power is Cheap

Another fact that tends to make the Tri-Cities the industrial center of the West is that power is cheap. Electric power may be had cheaper here than can be had from Niagara Falls, and as cheap as that from the great Keokuk dam. The present power is generated by hydro-electric plants in the Mississippi and Rock rivers. It is sufficient in quantity to supply any reasonable demand for the next half century.

In addition there is now pending in the United States Congress a bill authorizing the construction of one of the greatest water power dams in the country across the Mississippi River at Davenport.

The banks of Iowa hold $82,000,000 more on deposit now than they did a year ago. Of this the banks of Davenport hold nearly one-twelfth. From the clearing house here comes the statement that the Davenport banks have about $40,000,000 on deposit, and 40,000 individual accounts. This total deposit has increased over $6,000,000 in the past year.

From these figures it is readily understandable that Davenport is the second richest city in the United States per capita. The only city ahead of Davenport is Hartford, Conn., where the holdings in the banks of great sums of insurance money brings up the per capita rate of the community.

Also from the clearing house comes the statement that the bank clearings have increased $20,000,000 in Davenport in the past year. In 1915 they were $78,000,000, in 1916 $98,000,000. These are an excellent indication of the healthy state of business.

Buildings Are Increasing

Another index to the prosperity of the community is the increase in building permits. The Davenport Department of Public Works states that in 1915 $922,-498 was spent in new buildings. In 1916 $1,015,395 was spent. This year will doubtless see a much greater increase, as several semi-public buildings are proposed.

It is to the mechanics that the dealers are hoping to sell cars. These men are prosperous, have good jobs and are saving money.

The territory near here is pretty well worked at the present date; that is, in the farming districts. It is estimated that one person in every nine has a car in Scott County, Iowa, and in Rock Island County, Ill.—the two nearest counties. This makes sales hard unless an old car is taken in exchange.

The mechanics are already purchasing the popular priced car in large numbers. They buy them for cash, charter four or five of their co-workers, and go to and from work with them, charging a nickle a trip.

The territory has far from reached the saturation point, but from now on the dealers will have to specialize on intensive merchandising, beware of second hand cars, and push accessories and service.

Dealer Stages Tractor Show

H. W. Newman, of the Newman Machine Co., Davenport, Ia., who handles the Universal tractor in Scott, Cedar and Muscatine counties, has staged his own tractor show.

The show lasted 2 days, and each day brought about 350 farmer prospects. Four tractors were sold the first day, two have been sold since. Newman has

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a bunch of live prospects, and the total cost was about $175.

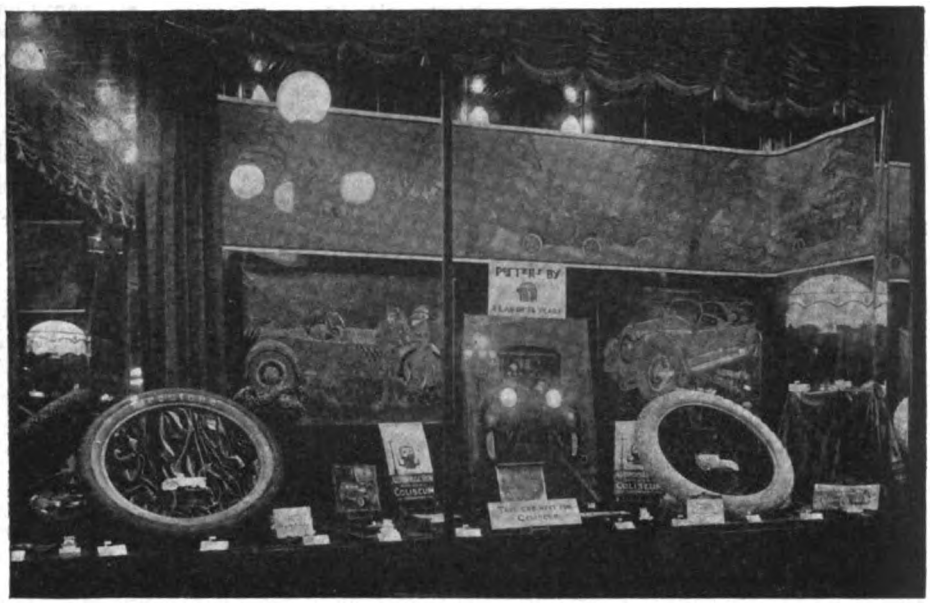
For a week and a half before the show, advertisements were placed in the local papers. Circular letters were sent to many prospects.

It was by no means a still show. Newman kept things moving. He had four tractors hooked up to different farm implements, and ran them around in front of the showroom. Each day he held a parade through the city.

On the first day, Mr. Turkenkopf, of the Moline Plow Co., gave a lecture on tractors. On the second day Prof. Hazlewood, of Iowa University, gave a lecture on seed and soil. There was something doing every minute.

Newman has had inquiries from a radius of 1000 miles, because the show was a good little news story, and got a lot of publicity. And he has made a good break into the summer selling season.

Newman is an automobile dealer, too, and what he has done any live wire dealer can do. The way to get ahead is to do something different, and Newman has done this.



During the Davenport show there was a window dressing contest for everyone. This shows the window of an art dealer who won first prize

Effective Methods of Obtaining Prospects

Some Suggestions from H. H. Hills, Assistant General Manager Packard Motor Car Co.

EVERY once in a while somebody has a new idea as to how to obtain good, live prospects, and at various times I have heard of or thought of different ways, and I submit the following as a nucleus to which others can be added:

1—Mr. Fuller, my godchild in Boston, pays $10 for every new prospect-suggestion which results in the delivery of a car or truck. This offer is open to every person in his Organization, excepting the salesmen and sales managers. That means that every man in the Specification, Service, Repair, Accessory, Stock, Paint and other Departments is looking for prospects. One of their men in the Accessory Department reported three prospects. Sales were made to two of them, and the twenty dollar bill looked very good to the man.

2—Individual sales effort to secure prospects by house-to-house or office-to-office campaigns.

3—Talking to drivers.

4—Through mail matter or circulars.

5—License numbers secured through motor list companies, secretaries of state, or by watching for them on the street.

6—Results of advertising.

7—Determine from month to month what the prosperous lines of business in each dealer's community are, and then work on those concerns' stockholders and executives.

8—Watch the society and personal notes, particularly for the return of wealthy people, either from abroad or the South. Just now the South, of course.

9—Watch marriage notices. Wealthy girls whose parents have cars occasionally marry men who have not been prospects.

10—Talk with Packard owners. Every Packard owner should be visited at least once every three months by salesmen, under the plea of asking him how everything is, and getting into conversation finally relative to his own wants and those of his friends.

11—Close co-operation between the technical field men and shop with the sales managers.

12—Membership lists of country, golf and other clubs, also blue book lists.

13—Watch the Probate Court news and keep track of those who have had fortunes bequeathed to them.

14—Many of the salesmen talk with men in garages and learn which of those who store cars there are likely to buy new cars.

15—Watch the newspapers for accounts of accidents and fires.

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Here is a general view of one of the aisles in the mammoth accessory exhibition put on by Rothschild's, a Chicago department store

Applying Department Store Methods to an Accessory Show

Rothschild's, Chicago, Has Put on an Exhibit Bigger—and Better—Than at Many Motor Car Shows

CHICAGO, March 17—An accessory show that is bigger than some of the season's motor car shows is being held by Rothschild & Co., one of Chicago's largest department stores.

The show occupies a whole floor of the store, containing 175,000 square feet. Few motor shows exceed this figure.

There are 125 exhibitors. This passes the figures of many shows.

The exhibition is being conducted on department store lines and sales are resulting. The show opened to-day and will close one week from to-day. By the end of the first day the show had attracted 50,000 visitors who spent $50,000.

Cut prices are used on goods where the maker or jobber gives permission. It is Rothschild's second annual accessory show and is proving a feeder for the store's other departments.

The 125 exhibitors of accessories were each in an individual booth specially decorated and each attended by a demonstrator either from the factory or from the local dealer or jobber. This was not a manufacturers' display, as are the motor car and accessory shows. Rothschild & Co. owns every item exhibited and sold and sales were made and orders taken by a Rothschild salesman in each booth, in addition to the factory or jobber's demonstrator. Some of these salesmen turned in slips at the end of the day which showed sales in some instances amounting to as high as $1,800 for the one day. Inasmuch as the salesmen get 2 per cent of their sales during the show, their interest is keen.

Representation is Complete

Representation of accessory manufacturers and jobbers is quite complete and very attractive exhibits are staged. Stewart-Warner has installed the display cases of spark plugs, speedometers, pumps and vacuum tanks which attracted so much attention at the New York and Chicago shows. There is an exceptionally attractive display of Pyrene outfits in the form of a Safety-First booth with a Red Cross nurse in attendance. Fisk and Goodyear tires are displayed; Rothschild's being a Goodyear service station. Other attractive displays were those of Warner lenses, Johnston's prepared wax and cleaners, Johnston's shock absorber, Dann insert, Mileometer, Peter Van Schack & Sons chamois and sponges, Wilmo manifold and Webb Jay vacuum gages.

Practically every accessory susceptible of special demonstration features had some sort of working exhibit to attract attention. A Ford motor in operation showed the circulation of Havoline oil, and a special transmission case demonstrated Havoline greases. This display was one of the most successful, as it dis-

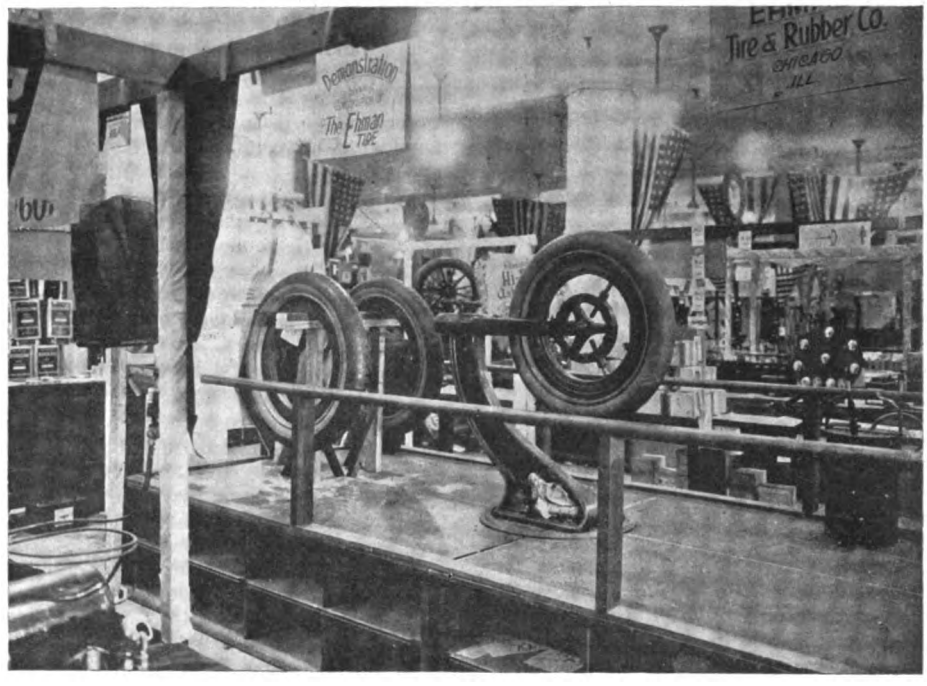
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posed of 2500 to 3000 cans of oils and greases the opening day.

The feature of the show from a demonstration standpoint is the display of the Ehman Tire & Rubber Co. in which tires are built complete with the exception of the vulcanizing. So attractive was this exhibit, together with the special prices, that over 2800 were sold to-day. This required the services of 25 salesmen the best of whom turned in sales slips totalling over $1,800—the lowest registered something under $700.

Although this is a show devoted to accessories presumably, there was one complete car exhibit. The Northside Buick Co. had a Buick on display. There were two other complete cars on the floor, one being a Ford used to give a practical demonstration of Mat's body polishes. So successful was the demonstration that it kept six salesmen busy at three counters, and over 1700 cans of body polish were sold.

The other complete car exhibit was in the demonstration of a Camelford truck adapter used in the transformation of a Ford into a commercial vehicle. Such a proposition as this is not susceptible of a great amount of direct business at a show of this sort, but attendants report a large number of likely leads from dealers as well as users.



The most elaborate exhibit showed the construction of Keystone tires. Twenty-eight hundred casings were sold on the opening day

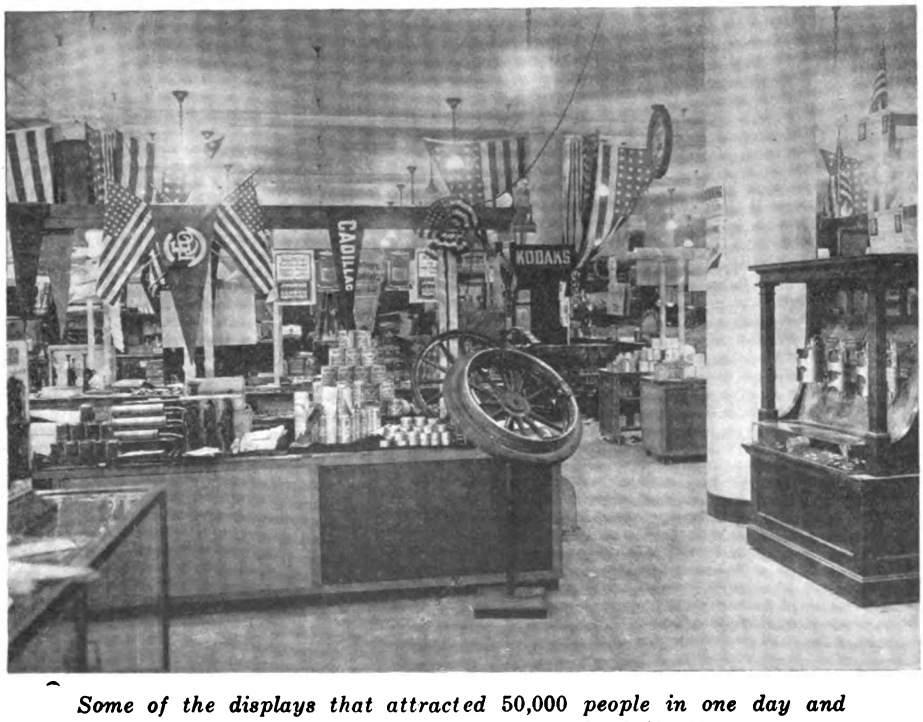
Some Clever Displays

With the idea in mind that the motorist is a very likely prospect for a camera, the Burton James Co., manufacturer of Rexo cameras, installed a booth and actually assembled the cameras as a part of the exhibition. They proved their point when sales slips were turned in by one girl at the camera counter for $2,500 in camera sales to motorists that one day. There were a number of specialties for Fords, several Ford starters, including the Genolite and the Heinze, which was exhibited by the Arthur Jones Electric Co.

To stage a show of this sort so successfully, has required a great deal of work and planning, and also experience not only in selling goods of this nature, but also in managing motor car displays. The accessory show is the idea of George H. Isrel, the manager of the department. He conceived the idea a year ago and at that time, put on a special motor car accessory exhibit on what at that time was quite an elaborate scale. It had twenty-five exhibitors—this year there were five times that many. It had 20,000 people as visitors during the first day; this year there were 50,000.

Based on the experience of last year, preparations for the present show were begun five months ago and $2,000 spent for decorating and carpentry. A much larger sum was set aside for advertising and elaborate and extensive advertisements are carried in all of the local papers.

Department store methods of cut prices on special lines are carried out, but only on such lines as the manufacturers and jobbers consent to have prices cut. The idea of specially attractive prices has been most successful, entire lines of some accessories on which particularly low prices were placed having been almost completely cleaned out the first day. For instance, sets of seat covers with top boot, kick pad and so on, ordinarily selling at $15 and specially priced for this one day at $5.95 were almost sold out.



Some of the displays that attracted 50,000 people in one day and resulted in their spending upward of $50,000

Tire Covers Cleaned Out

Tire covers, selling Saturday at a figure less than half the regular price, were reduced from a stock of 10,000 to a barrelful of miscellaneous remnants.

In addition, there are special features in the way of exhibitors' souvenirs and prizes offered each day. Saturday the Dann Insert men gave tags to every inquirer at the booth, these tags bearing numbers, some one of which would draw a prize of a set of Dann inserts at the end of the show.

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Cars Sell Freely at Third Jamestown Show

One Dealer Signs up 35 New Owners —Stanley Steamer Attracts Attention—Electrics Increase

JAMESTOWN, N. Y., March 14—The third annual show of the Jamestown Automobile Dealers' Association was brought to a close here Saturday night. The show has proven a great success, far more than was anticipated by the dealers themselves during the first few days of the show. The exact number of motor cars that have been sold during the week is not known. One local dealer stated that during the week of the show and the few days following he had disposed of 35 cars.

For the first time a steam car was exhibited in this city. This was a Stanley steamer and attracted considerable attention. The electric car seems to have come into its own and is being sold more and more here.

On Thursday night a banquet in honor of the visiting automobile men was given by the local association. Over one hundred were assembled. R. J. Barcows, Jr., president of the Jamestown Automobile Club, acted as toastmaster and introduced the speakers. Those who responded to toasts follow: Mason B. Hatch, Chalmers Motor Car Co., Buffalo; J. R. Moore, Paige Motor Car Co., Buffalo; C. H. Burke, district manager Buick Motor Company, Buffalo; J. F. Nolan, district manager Maxwell Motor Car Co., Detroit, and H. C. Loveland, Saxon Motor Car Co., Buffalo.

Centralize Jeffery Distribution

MILWAUKEE, March 10—Jeffery passenger and commercial car distribution in Wisconsin, Upper Michigan, and the Upper Mississippi Valley has been centralized at Milwaukee by the establishment of the Nash Sales Co., incorporated with a capital stock of $500,000, which takes over the territorial rights of the Osmond-Vogel Co., Milwaukee, and much additional territory.

The backers of the new company are Rudolph Hokanson, George P. Miller and Byron Stebbins, Madison, Wis., owners of the Hokanson Automobile Co., one of the earliest wholesale and retail motor car firms in Wisconsin. The Hokanson company is one of the largest distributers of Buicks and Oaklands in the middle west.

Rudolph Hokanson comes to Milwaukee to take personal charge of the new Jeffery distributing branch. The Nash Sales Co. will occupy the former Osmond-Vogel branch house at 455-459 Broadway, Milwaukee, which has been the home of the Jeffery since the days of the first Rambler car.

N. E. Osmond and Henry M. Vogel, who relinquish the Jeffery line, will devote their entire attention to the distribution of the Chalmers in Wisconsin and upper Michigan. Osmond and Vogel organized the Chalmers-Wisconsin Co. several months ago and established a distributing station at 215 Wisconsin Street. They have been the State representatives of the Chalmers since the territory was taken from Harry Newman, Inc., last fall, but were active only in the Jeffery branch until now.

The Chalmers-Wisconsin Co. will build a large branch house in Milwaukee later in the year. The exact location is not yet divulged.

Building Expansion in Northwest

MINNEAPOLIS, March 17—Early building reports are an index to expectation that 1917 is to see a big touring season. Reports from Montana of new garages in the making confirm statements by distributers here that Montanans are just eating cars up. For this week alone projects for garage building in Montana have developed as follows: Mckinney-Fuller Motor Co., Glasgow; R. R. Hoyt, Thompson Falls; Edward Love, Parma; H. W. Boozer, Cenou.

Conditions are similar in North Dakota. New buildings are announced this week as planned for Hazleton, Hankinson, Burnstad, Willow City, New Salem, Grand Forks and Lisbon. In South Dakota new projects for the week are at Belvidere, Dimock, Parker, Vivian, Twin Brooks, Whitewood. In Minnesota new garages will be built at Sherburn, Proctor, St. Cloud, Underwood, Cologne, Cass Lake, Hitterdal, Winger.

Bronx Garagemen to Organize

NEW YORK, March 14—Fourteen Bronx garagemen and accessory dealers met this afternoon and formed an organization which eventually will be known as the Bronx Garagemen and Accessory Dealers' Association. Fred J. Hinners, Mott Haven Garage, was elected temporary chairman and Edward F. Branning, Bronx West Side Garage, temporary secretary. Among those present were: A. A. Noonan, Cortlandt Garage Co.; F. J. Dieterich, president and V. N. Edwards, treasurer, Dieterich-Edwards Co.; A. H. Sedale, Tremont Garage Co.; John M. Ireland, Grand Concourse Garage Co.; G. W. Demarest, Terminal Garage; William J. Gannon, Bronx Rubber Co.; J. E. Brunings, Jeb Auto Tire Works; John G. Stark; C. F. Sturni, Inter-County Battery & Electric Co., and S. P. McMinn, MOTOR WORLD.

Truck Converter From Los Angeles

LOS ANGELES, March 17—For the purpose of manufacturing a universal attachment for converting passenger car chasses into commercial vehicles, the Le Munyon & Bidelman Company has been organized and construction begun at Alhambra, a suburb of Los Angeles. In addition to the truck attachment, this company expects to build a gasoline propelled tractor of unique design. They also will produce a magneto charging instrument.

Colorado Dealers Urge Passage of Lien Law

Measure Introduced to Give Garagemen Grip on Delinquents—Over 1500 Dealers Behind the Law

DENVER, March 12—A bill for a lien law to protect all branches of the motor car business in Colorado has been introduced in the State legislature through the influence of the Automobile Trades' Association of Colorado. The measure provides for a lien on all kinds of motor vehicles, to apply to charges for storage, maintenance, keep or repair, and for supplies, accessories, parts, gasoline or electricity, and for labor and services.

The proposed lien is to be binding for a period of 30 days from delivery date, without filing or giving any notice, but the claimant must file a specified form of lien with county clerk and recorder to make a lien claim effective longer than this 30 days.

Where lien is filed and claim collected, proper notice of settlement must also be filed with the clerk and recorder. Exemption is provided for innocent purchasers or mortgagees, where purchase or mortgage is made in good faith and without notice of such lien, but a penalty of $25 to $100 fine or imprisonment for 30 to 60 days is provided against an owner for selling or mortgaging a lien-bound car within the first 30-day lien period without duly notifying the purchaser or mortgagee of the lien liability.

The trades body is working hard to get the law through a legislative session badly crowded with bills, and has written to 1500 motor car and accessory dealers, garage and filling station proprietors throughout the State urging them to use every effort possible to get the bill enacted.

Oneida to Begin April 1

GREEN BAY, WIS., March 10—The Oneida Motor Truck Co., organized with $300,000 capital to build the "Oneida" motor truck, expects to start manufacturing April 1. The company has taken a lease on the large factory building at Webster Avenue and Willow Street, Green Bay, where space 140 x 50 and 100 x 60 ft. is available. The company has been assured of deliveries of materials and parts so that the first trucks will be coming through by May 1. More than one-third of the contemplated production for 1917 already has been sold.

Rainier Starts Deliveries

NEW YORK, March 12—Rainier Motor Corp., Flushing, N. Y., is now making deliveries of its delivery car. The factory was started less than 6 months ago. Deliveries are averaging five machines daily.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

E. V. Bishop, formerly sales manager of the Triple Action Spring Co., has become connected with the Illinois Spring Co., Chicago.

R. G. Shuert has been appointed factory manager of the Acason Motor Truck Co., Detroit. He assumed his new duties March 1.

W. B. Chambers, recently assistant manager of the Philadelphia Maxwell factory branch, has resigned to become connected with R. E. Loughney Motor Co., Pittsburgh, Stutz and Reo distributer. He assumed his new duties March 15.

Marcus I. Brock, director of sales for the American Motors Corp., Plainfield, N. J., has resigned.

John C. Spiers, general manager in charge of production of the American Motors Corp., Plainfield, N. J., has severed his connection with the company.

C. L. Nedoma has been appointed consulting engineer to the advertising department of the Chalmers Motor Co., Detroit.

O. C. Williams, formerly connected with the Eastern sales organization of the Studebaker Corp., has become assistant sales manager of the Stephens Motor Branch of the Moline Plow Co. His headquarters will be in Moline.

Wallace M. Williams, formerly member of the advertising department of the Willys-Overland Co., Toledo, has resigned and is in charge of the advertising and publicity for the Overland-Syracuse Co., John W. Lee, Jr., president. Williams was at one time advertising manager of the H. H. Franklin Manufacturing Co.

Robert A. DeForest, formerly service man at the Packard Motor Car Co., Detroit, and at one time service manager for C. Arthur Benjamin in Syracuse, has taken the position of sales manager at the Chalmers-Syracuse Co., Syracuse, N. Y.

George W. Bartlett, for 2 years sales manager for the C. A. Spear Motor Co., Syracuse, and at one time Studebaker distributer, has become manager of the Syracuse branch of the Binghamton Motor Sales Co., Marmon and Velie dealer.

P. H. Diggle, Dallas, Tex., for more than a year assistant manager for the Goodrich Rubber Co., has been made manager.

T. M. Rude, formerly purchasing agent for the Scripps-Booth Corp., is now affiliated in a like capacity with the Fiat Co. at Poughkeepsie, N. Y.

J. M. Kemp has been appointed purchasing agent for the Scripps-Booth Corp., Detroit.

R. M. Smith, who has been the Western manager of the American Garage & Auto Dealer, has resigned to take charge of the sales of the Cleveland Battery & Electric Co.

Guy E. Norwood has been elected secretary of the B. F. Goodrich Co. and succeeds C. B. Raymond, who with W. A. Means, former treasurer, becomes a vice president.

Ray F. Donahue, formerly assistant sales manager of the Ross Automobile Co., has been appointed to the sales staff of the Harroun Motors Corp.

Stegeman Makes Changes

MILWAUKEE, March 19—The Stegeman Motor Car Co. has doubled its capital stock by an increase from $100,000 to $200,000, preparatory to taking the occupancy of factory additions which will increase the capacity nearly fourfold. At the same time Joseph C. Millmann, secretary and treasurer of the company since its organization, has retired. His interest has been taken over by Oscar Stegeman, president and general manager, and L. G. Schertl, Milwaukee, the latter taking Millmann's positions. Schertl also will be director of sales. Frank H. Parker continues as vice-president. Frederick Gettelman, a well-known brewer of Milwaukee, has become a member of the board of directors.

Harry Tipper to Manage The Automobile

NEW YORK, March 14—Harry Tipper, who for 9 years has been advertising manager of the Texas Co., has resigned to become manager of The Automobile, published by the Class Journal Co. Tipper is a past president of the Association of National Advertisers, and is now president of the Advertising Club of New York. He assumes his new post May 1.

Motor Securities

	Mar. 17, 1917 Bid	Asked
*Ajax Rubber Co	68	69
*J. I. Case T. M. Co. pfd	82	88
Chalmers Motor Co. com	25	30
*Chandler Motor Car Co	101	103¼
Chevrolet Motor Co	140	142
Fisher Body Corp. com	35	40
Fisher Body Corp. pfd	94	96
Fisk Rubber Co. com	65	75
Fisk Rubber Co. 1st pfd	101	105
Fisk Rubber Co. 2d pfd	70	100
Firestone Tire & Rub. Co. com.	142	144
Firestone Tire & Rub. Co. pfd.	107¼	109
*General Motors Co. com	121¾	122¼
*General Motors Co. pfd	90	90⅞
*B. F. Goodrich Co. com	56	56⅝
*B. F. Goodrich Co. pfd	110	112
Goodyear Tire & Rub. Co. com.	135	140
Goodyear Tire & Rub. Co. pfd.	107¼	109
Grant Motor Car Corp.	5	7
Hupp Motor Car Corp. com	4	5
Hupp Motor Car Corp. pfd	85	90
International Motor Co. com	..	17
International Motor Co. 1st pfd.	..	70
International Motor Co. 2d pfd.	..	30
*Kelly-Springfield Tire Co. com.	59½	61
*Kelly-Springfield Tire Co. 1st pfd	91	94
*Lee Rubber & Tire Corp	22	22½
Maxwell Motor Co., Inc., com	55½	56½
*Maxwell Motor Co., Inc., 1st pfd.	70½	72
*Maxwell Motor Co., Inc., 2d pfd.	34	35
Miller Rubber Co. com	258	264
Miller Rubber Co. pfd	104¼	106½
Packard Motor Car Co. com	156	..
Packard Motor Car Co. pfd	..	101
Paige-Detroit Motor Car Co	37½	38¼
Peerless Truck & Motor Corp	15	19
Portage Rubber Co. com	179	184½
Regal Motor Car Co. pfd	..	26½
†Reo Motor Car Co	36	36¾
*Saxon Motor Car Corp	56½	58
Springfield Body Corp, com	70	80
Springfield Body Corp. pfd	110	120
Standard Motor Construction Co.	7	8
*Stewart-Warner Speed. Corp	80½	81½
*Studebaker Corp. com	103	103½
*Studebaker Corp. pfd	105	106
Swinehart Tire & Rubber Co	..	81½
United Motors Corp	39¼	39¾
*U. S. Rubber Co. com	61¼	61½
*U. S. Rubber Co. pfd	105¼	109
*White Motor Co	49¾	50
*Willys-Overland Co. com	34⅝	35
*Willys-Overland Co. pfd	99	99½

*At close March 17, 1917. Listed New York Stock Exchange.
†Par value $10; others $100.

New York Dealers Want Licensing Law Revised

Would Have Provision for Adequate Number of Plates—Also Hope for Better Jersey Rule

NEW YORK, March 19—The Willys-Overland Co. was admitted to membership in the Automobile Dealers' Association, Inc., at the regular monthly directors' meeting last week. The company will be represented by Guy Hutchison. Legislation was the principal topic discussed at the meeting, and the result of a recent conference with the Secretary of State and other officials on the Wells-Hewitt bill made known. The association has succeeded in having introduced an amendment which will allow dealers to have five sets of number plates, and more if needed. It is proposed now to have the bill further amended to abolish a clause which permits owners to use dealer-plates only 5 days.

Another matter which came up for discussion concerned reciprocity between New York and New Jersey. At present owners of New York licenses, including dealers, are allowed only 15 trips to New Jersey. Where a dealer has 15 demonstrators and these go over the ferries on one day his 15 trips are then used up. This has occurred to some large distributors operating Newark and Jersey City branches, and they have been summoned and notice served on them that they must obtain New Jersey licenses.

Secretary Charles A. Stewart, of the dealers' association, is at present working with the motor vehicle commissioner of New Jersey, and it is confidently expected that an amicable readjustment of the situation will be reached in the near future.

Syracuse Branch for Studebaker

SYRACUSE, March 17—This city is to be the distributing center for New York State for Studebaker, according to the company's present plans. A branch office has been opened at No. 430 South Warren Street and L. Van Buskirk has been placed in charge. He is now organizing a sales and service station force. It is the intention of the Studebaker Corp. to locate a service station somewhere in the center of the city and other stations in remote parts of the city. Van Buskirk was central and western New York representative of the Studebaker Corp.

Gilson to Make Coils

RACINE, WIS., March 19—James W. Gilson, formerly a prominent official of the Mitchell-Lewis Motor Co., Racine, now the Mitchell Motors Co., has organized the Western Coil Co., to manufacture a varied line of electrical appliances for motor cars and other purposes. The company has purchased the former Main telephone exchange at Racine, and will start operations about April 15.

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Fargo Did $15,500,000 Motor Business in 1916

All of Which Helped Make a Good Show in "the Biggest Little City in the World"

FARGO, N. D., March 15—Because two great trans-continental lines meet at Fargo and then spread over the Northwest like a fan, this city has become the gateway through which an extensive territory receives its supply of motor cars. As a result the annual business jumped from $14,000,000 in 1915 to $15,500,000 last year.

Undoubtedly these facts have contributed considerably to the remarkable success of the Fargo motor car show which was held this week. With an exhibit of 70 cars, 4 different makes of motor trucks and 10 accessory dealers filling two floors and the balcony of the city auditorium, and an attendance representing a great trade territory, the Fargo show was on a par with any similar exhibition held between the Twin Cities and the Pacific Coast.

Over a million dollars have been invested in this city by various motor car firms in buildings and equipment. There are 16 distributers and 5 tire factory branches. The value of the tires sold last year exceeds $1,500,000. Fargo territory consists of western Minnesota, North Dakota, eastern Montana and northern South Dakota. The Ford company in this territory sold 6000 cars in 1915, over 12,000 in 1916, and they are preparing for a 50 per cent increase this year. The value of their assembling plant and stock on hand exceeds $350,000.

In North Dakota the motor car is not a luxury, it is a necessity. Of the State's 600,000 inhabitants 70 per cent live on the farms, and the largest city, Fargo, has but 22,000 population. As a result the farmer must have the motor car for quick transportation to trade centers, and the large amount of land tilled has created a tremendous market for the farm tractor and service truck.

The State's business is farming. It has no factories to speak of, but the value of its grain crops annually reaches a total of $160,000,000. The unique political situation now existing in the State ought not in any way to interfere with motor car business. The farmers are simply gathering together to build up a State which has for a quarter of a century acted as a feeder for the great trade centers of the East. They are erecting their own packing plants, their own flour mills and elevators. The farmers are going into business and they are making a success of it. The maker of motor cars need have no fear of North Dakota. His only problem will be to supply the demand.

DeWitt Drives Away

SYRACUSE, March 17—Twenty Reo touring cars, roadsters and trucks were brought over the road from Lansing, Mich., to this city this week by H. N. DeWitt, president of the Syracuse-Reo Company, and a party of salesmen and owners of the cars. This was the first trip of this kind attempted by any dealer in or near this city. The distance travelled was 630 miles. The party left Lansing March 10 and arrived in this city March 14. DeWitt's need of cars for immediate delivery inspired the hard trip, but the task was lightened because the car owners and salesmen who made the trip were inclined to regard it as an interesting experience.

Warren's Show Successful

WARREN, PA., March 17—The first annual show of the Warren dealers opened Wednesday, March 14, in the Rossell Building. During the afternoon and evening over 1200 people thronged the building. About 25 dealers and garagemen, with a display of 42 cars and many accessories, mark the inauguration of the annual displays here. The exhibit is confined to two floors of the building. The halls are decorated with American flags and bunting and miniature colored electric lights gleam from almost everywhere.

Warren is the logical distributing center for Warren, Forest, Elk and a portion of McKean County in Pennsylvania. Warren is in the northwestern part of Pennsylvania, and has a population of about 12,000. It is in the center of the oil and gas producing region and abounds in considerable wealth.

34,371 Tractors in Use

WASHINGTON, D. C., March 19—During 1917 there will be 34,371 gasoline and kerosene tractors in commission throughout the United States. This figure has been obtained by the office of Farm Management in co-operation with the Bureau of Crop Estimates, U. S. Department of Agriculture. This department sent out inquiries to 33,000 correspondents, who were requested to report all tractors actually to be used this season. Following is a tabulation showing the number of tractors to be used in each state:

Alabama	313	Nebraska	1,773
Arizona	23	Nevada	19
Arkansas	336	New Hampshire	23
California	1,358	New Jersey	107
Colorado	525	New Mexico	83
Connecticut	47	New York	1,210
Delaware	34	North Carolina	452
Florida	71	North Dakota	2,137
Georgia	543	Ohio	1,305
Idaho	262	Oklahoma	795
Illinois	3,202	Oregon	318
Indiana	1,852	Pennsylvania	595
Iowa	2,223	Rhode Island	30
Kansas	2,287	South Carolina	387
Kentucky	348	South Dakota	1,527
Louisiana	343	Tennessee	442
Maine	53	Texas	2,235
Maryland	190	Utah	88
Massachusetts	91	Vermont	75
Michigan	945	Virginia	434
Minnesota	1,575	Washington	209
Mississippi	377	West Virginia	90
Missouri	1,141	Wisconsin	904
Montana	808	Wyoming	186

Dealers in Omaha Fear 1917 Tractor Shortage

Keen Sales and Inadequate Shipping Facilities Cause Apprehension in Nebraska and Iowa

OMAHA, NEB., March 17—A tractor shortage in Nebraska and western Iowa is the condition which jobbers in this territory are facing as the result of the unprecedented volume of sales during the past few months. Dealers here and in Council Bluffs have received practically all the tractors they have considered would be necessary for spring sales demands, but sales have far exceeded this number in many cases.

Consequently, with the freight car situation what it is, the jobbers have come to believe that relief from the shortage will not come in time to be of any great value in spring farming, and this will therefore be done to a considerable degree by horse power at the hands of disappointed farmers. With the frantic efforts now being made by the jobbers, however, together with the special efforts planned during the summer months, it is hoped to have the situation in such shape that the fall selling season will not only be satisfactory to the farmers but will eclipse anything dreamed of by the dealers themselves.

Even as it is, the jobbers prepared for a record-breaking spring selling. They had worked during the winter months to good advantage, and the automobile show here came at a time when all should have been ripe for a whirlwind spring campaign. It was with deep chagrin that the dealers watched the volume of business which they might have had slip through their fingers for several months more just because they had not been adequately prepared for it. As it was, one single firm sold 115 tractors here during the show week, while another sold 85. But they didn't have enough on hand to supply the unheard-of demand.

The tractor men consider that they have some slight advantage over the motor car dealers, however, in that a greater percentage of their shipments may be handled in open freight cars without material damage. They are counting on this to alleviate somewhat the pressure during the summer months.

1000 Franklin Cars a Month

SYRACUSE, March 17—Officials of the Franklin Automobile Co. predict that March will be the greatest month in the history of the company. Five new additions are now in use, relieving congestion and developing production to the extent of 1000 cars in the 233 working hours of the month. A car every fourteen minutes, or a 12,000 car per year basis, is what this means. A 200 per cent increase in production has been necessary.

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Birmingham Pleased at Success of First Show

Dealers Plan More Elaborate Exposition Next Year—See Great Good for City's Business

BIRMINGHAM, ALA., March 17—Birmingham became a full grown automobile city when her first automobile show closed its doors March 10 after one week's successful run. The show made such a decided hit, and the dealers are so well satisfied with results obtained that they are already making arrangements for staging a bigger and more elaborate exhibit next year.

That the dealers of Birmingham realize the good that accrues from automobile shows generally was evidenced when every dealer in the city took space in the building and exhibited his cars there, notwithstanding the fact that he knew the show, being the first, would necessarily be in a way an experiment.

However, every dealer was more than satisfied with the results accomplished during the show. There were 51 exhibits in all and 100 cars were sold during the week. Thirty-seven different makes of cars were represented and eleven different makes of trucks. Seventeen dealers had accessory booths.

During the week seventeen thousand people paid admission into the show, the largest number present on any one night being 4000 on Friday, Society Night.

The show was staged under the supervision of a local committee of live wire dealers, with Ted Brownell, Ford agent, as chairman. The committee worked with Manager Henry B. Marks in putting on the show, and all the dealers in Birmingham co-operated to make it the success that it was.

Gem to Make Cars and Trucks

GRAND RAPIDS, MICH., March 17—The Gem Motor Car Corp. has been organized here with a capital stock of $200,000, of which $70,000 has been paid in, to manufacture two models of a light delivery car to sell for $675 and $750, and a five-passenger touring car, built on the light delivery chassis, to sell for $845. A complete chassis, manufactured by the Detroit Chassis Co., will be used, and the bodies will be made by the Belknap Wagon Co., Grand Rapids. A large factory building, valued at $47,000, which is paying back substantial rentals to the company, has been purchased. The work of assembling cars will soon be started. A. H. ONeill, Grand Rapids, is president of the corporation; Robert H. Clark, Kalamazoo, manager of the Clark Engine & Boiler Works, is vice-president; Ernest McLean, Kalamazoo, treasurer of the Michigan State Hotel Keepers' Association, treasurer; John Gray, Detroit, general manager Detroit Chassis Co., engineer and director; Beverly Deuel, Grand Rapids, Deuel & Sawall, brokers, secretary, and C. A. Harmon, Detroit, formerly with the Packard and Cadillac, consulting engineer.

Mansfield Plant for Halladay

MANSFIELD, OHIO, March 19—The Halladay Motor Car Co., capitalized at $1,000,000, and recently formed, will locate here, taking over the plant of the Baxter Stove Co. Partial operations will start soon, the entire plant for the manufacture of the Halladay car being moved here from Streator, Ill., where the car has been made by the Barley Motor Car Co. Incorporators are: T. E. Huth, Canton; Y. F. Stewart, Cleveland; G. B. Stacye, Cleveland; J. N. Horne, Warren, and Fred Stanley, Sebring. Huth is general manager, and is well known in the industry.

Dealer Gets Traffic Manager

ST. LOUIS, March 19—Unusual transportation problems this season have prompted the Vesper-Buick Auto Co. to add to its staff here a traffic manager in the person of E. J. Naylor, for many years with the Chicago & Alton Railway. This appointment is a new office for a distributer, as far as St. Louis is concerned. Naylor will assist in getting cars here from the factory and look after the distribution to the southwest from here.

Reo Producing at High Capacity

LANSING, March 15—The statement appearing in a recent issue of Motor World to the effect that the Reo Motor Car Co. is operating at 50 per cent of its capacity because of freight congestion, and which was made by the traffic department of the Reo company, is somewhat of an exaggeration according to other officials of the concern. They state that while freight congestion has to some extent hindered shipment, production, which is almost at full capacity, has not been reduced because of it.

Kelly to Merchandise Dreadnaughts

NEW YORK, March 16—Charles F. U. Kelly, recently with the Kelly-Field Co., managing Lee tire sales, has joined the reorganized Dreadnaught Tire & Rubber Co., Baltimore. He has taken full charge of the sale and distribution of the entire products of that company. A group of the Baltimore business men recently took over the affairs of the old Dreadnaught company. The new organization starts with abundant capital to carry out an aggressive policy. New equipment and machinery have been provided, capable of doubling the former capacity of the plant, and plans have been formulated for the erection of extensive new buildings, with all modern facilities, to take care of the anticipated business. H. L. Pettingell, prominent in the tire trade, will be one of the heads of the new sales organization, continuing his association of the past 5 years with Kelly. The headquarters of the sales department will be 1834 Broadway, New York.

$17,500,000 Is Invested in Fargo's Motor Trade

1916 Makes Increase of $3,500,000—2050 People Supported and Most Workers Own Homes

FARGO, N. D., March 17—By careful estimate with the automobile dealers, Secretary J. P. Hardy, of the Commercial Club, has found $17,500,000 is invested here in the motor car, accessory and automobile and tire repair business. The investment in 1915 was $14,000,000 and in 1916 was an increase of $3,500,000.

Prospects are for an even greater gain in 1917 over last year. These figures were prepared in connection with a study for results of the fourth annual Gate City automobile show here, March 13-16. In addition there is an investment in garages and their equipment of $1,000,000. Business gained over last year at from 25 to 300 per cent for different dealers interviewed on this question.

In the city are sixteen distributers, four tire factory branches, eight repairshops, five paintshops, two upholstering and two top shops and four tire repairshops outside of garages. Each of the 41 firms in the city directly concerned in the automobile business employs an average of 10 men, and at 5 to the family the importance of the motor car to 2050 people is easily figured. Practically each one of the employes gets good wages and owns a home here.

Goodrich Re-elects Directors

NEW YORK, March 16—The B. F. Goodrich Co. at its annual meeting re-elected its retiring directors. The stockholders at a special meeting voted in favor of the plan to retire an additional $900,000 of the preferred stock. This leaves the authorized and issued preferred at $26,400,000. The old officers were re-elected with the following exceptions: C. B. Raymond and W. A. Means were elected second vice-presidents; G. E. Norwood, secretary and assistant treasurer; L. B. Brown, treasurer; J. C. Lawrence, assistant treasurer.

The executive committee now consists of B. G. Work, A. H. Marks, H. E. Raymond, E. C. Shaw, C. B. Raymond, W. A. Means, A. B. Jones, and the following were added to the operating committee: L. B. Brown and F. C. Van Cleef.

Hayes-Ionia Co. in Grand Rapids

DETROIT, March 16—It is reported that the Hayes-Ionia Co. will establish a large plant at Grand Rapids for the manufacture of closed bodies. The reports also have it that the company will increase its capital stock from $70,000 to $500,000, and that the Grand Rapids plant will start with a contract for 15,000 closed bodies.

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Pacific Coast Dealers Consider Organization

Are Organized Only Locally, Yet Do an Annual Business That Amounts to Millions

LOS ANGELES, March 19—Pacific Coast dealers, headed by those in Los Angeles and San Francisco, are agitating for a Pacific Coast trade association. Dealers point out that though they are annually transacting business running into millions of dollars, they are unorganized except for local organizations. It is planned to affiliate these associations with one all-embracing coast association, which will include California, Oregon, Washington, Idaho, Nevada, Arizona and possibly one or two neighboring states. The organization should, it is believed, include all cities from San Diego to Seattle, embracing a territory approximately 1,500 miles long.

Dodgeville Dealers Organize

DODGEVILLE, Wis., March 17—The Iowa County Automobile Dealers' Association was organized with a membership of 16 accredited dealers at a meeting held in Dodgeville, Wis. Officers were elected as follows: President, J. H. Ford, Dodgeville; vice-president, unnamed, Dodgeville; secretary, Harold Cummings, Mineral Point; treasurer, C. C. Dixon, Rewey, Wis. A constitution and by-laws will be adopted at the next regular monthly meeting in April. At that time it also is expected that plans will be announced for a southwestern Wisconsin show early next spring. The new association represents the famous lead and zinc mining districts of Wisconsin, which is considered an exceptionally prolific territory because of the prosperity due to the high prices of these materials at this time.

Peake to Stage Festival

KANSAS CITY, March 17—E. E. Peake, secretary of the Kansas City Motor Car Dealers' Association, has been made secretary and manager of the festival company, organized by representatives of civic bodies to stage a celebration this fall.

Ferdinand W. Roebling Dead

TRENTON, N. J., March 15—Ferdinand W. Roebling, treasurer and general manager of the John A. Roebling Sons' Co., and a director of the Mercer Automobile Co., this city, died at his home here on March 10.

Dallas Show Oct. 13-28, 1917

DALLAS, March 17—October 13 to 28 inclusive have been named as the dates for the Texas Automobile Show of 1917, to be conducted under the direction of the Dallas Automobile and Accessory Dealers' Association. Plans are already under way for the biggest automobile show the South has ever seen. The association has secured from the Texas State Fair the mammoth implement building, with a floor space of more than 100,000 square feet. The old automobile building will be used for another purpose. This new arrangement almost doubles the space occupied by the automobile displays last year. S. I. Munger, Munger Automobile Company, Cadillac distributors, is in charge of plans for the show.

Northwestern Increases Capital

MARIETTA, O., March 19—The Northwestern Chemical Co. has increased its capital stock from $20,000 to $150,000, and this will be divided into $100,000 common and $50,000 preferred. The new capital will be used for expansion.

Price Increases

Commerce Increases Prices

DETROIT, March 16—The Commerce Motor Car Co. has increased its prices. The ¾-ton truck is now $975 for the chassis and $1,075 for the chassis with any one of the various bodies the company provides. The 1-ton chassis is $1,240 alone, $1,275 with an open express body, $1,350 with an express canopy body, $1,390 with a stake body.

National Prices Raised $100

INDIANAPOLIS, March 17—The National Motor Vehicle Co. has raised its prices $100. In the Sixes the following prices will prevail: Roadster, touring car and phaeton, $1,850; coupé, $2,500, and Springfield body, $2,450. In the Twelves the new prices are: Roadster, touring car and phaeton, $2,250; coupé, $2,900, and Springfield body, $2.850.

Davis Raises Prices $100

RICHMOND, IND, March 16—The Davis Motor Car Co. will raise its prices $100 April 1 on models H, I, J and JI, with the exception of the Springfield sedan, which remains at its present price. The H and I models are at present: Two-passenger, five-passenger and seven-passenger, $1,195; coupe, $1,595; sedan, $1,795, and detachable top, $1,995. Model J is $1,495 for both the five and seven-passenger types.

Hupp Increases Prices $100

DETROIT, March 17—The Hupp Motor Car Co. has increased its prices $100 on all open models. The five-passenger touring car is now $1,285; two-passenger roadster, $1,285, and the seven-passenger touring is now $1,440. The five-passenger sedan is still selling at $1,735.

Regal Now "Hi-Power-Four"

DETROIT, March 19—The Regal Motor Car Co. has changed the factory designation of its model 4-Thirty-two to "Hi-Power-Four."

Washington Is to Have a Motor Carnival Week

Salesrooms Will Be Decorated—Dealers Will Parade—Membership Campaign Planned

WASHINGTON, D. C., March 17—The week beginning April 2 has been selected by the Automobile Trade Association of Washington as the date for an event to be known as "motor car carnival, or open house week." As originally planned the event was to be participated in only by the dealers comprising the association, but at a meeting held this week it was decided to invite every dealer here to take part. At the same time it was voted to begin an active campaign to bring every dealer here into the association. Joseph B. Trew, Trew Motor Co., Reo dealer, was appointed chairman of the Membership Committee, and the various automobile editors of the city were named to assist him in the work.

A similar carnival was held here some years ago and was a decided success. The plans call for each dealer to decorate his salesroom according to his own ideas and to display as attractively as possible the various models of the lines he represents. Each salesroom will be open evenings, and many dealers will have an orchestra as an added attraction. In order that visitors may visit as many salesrooms as they desire, each dealer will have a number of cars on hand in which to transport their visitors from store to store.

Motor Parade Scheduled

While the association will make suggestions as to the proper conduct of the event, each dealer will be free to use his own judgment as to the best methods of attracting visitors. A motor car parade to be held on one day of carnival week is also one of the possibilities. Whether it will be a day or a night affair has not been determined.

At the meeting of the association the old officers of the association with the exception of Robert Martin, who is now in business in Atlanta, Ga., were re-elected. They are: Joseph M. Stoddard, Cook & Stoddard Co. (Cadillac), president; S. A. Luttrell, Luttrell Co. (Packard), vice-president; W. C. Long, Commercial Automobile & Supply Co. (Studebaker), treasurer; C. W. Semmes, Semmes Motor Co. (Hudson and Dodge), was elected secretary.

J & D Re-elects Officers

CHARLOTTE, N. C., March 19—The following officers of the J & D Tire & Rubber Co. were re-elected at the annual meeting: President, H. O. Smith; vice-president, Thomas J. Northway; treasurer, C. C. Coddington; secretary, Lee A. Folger. These men, together with H. S. Leyman, W. H. Welbon, John L. Dabbs and E. Thomason, form the board of directors.

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One Car to 29 People in the United States

Year Ago the Ratio Was 1 to 42—15 States Have More Than 100,000 Cars

There is now one motor car or motor truck to every twenty-nine persons in the United States, while a year ago the ratio was one to forty-two.

In Iowa and Nebraska there is one car to every 13 persons.

The total registration at the end of 1916, excluding all duplicate registrations, was 3,541,738, the gain for the 12 months, totalling 1,070,143, or 44 per cent as compared with the registration at the end of 1915.

The gain during the entire year 1915 was only 686,998, so that the increase last year was nearly double the highest preceding record.

Whereas only eight States were entitled to the credit of having passed the 100,000 mark in registration at the end of 1915 the close of the past year found fifteen States in this class. Moreover, New York was the only State with over 200,000 cars in 1915, but now four other States, Ohio, Illinois, Pennsylvania and California, have joined what might be characterized as the super-distinguished class, while Texas is credited with only 2313 less than this number.

The accompanying tables give the number of cars in the various states as of Jan. 1, 1917, with all duplicates eliminated; the number of dealers, garages, repairshops, etc., this being compiled by the Automobile Trade Directory, and the total registration as compared with the population.

Registration and Population

State	Pop. July 1, 1916 Census	Cars and Trucks	Pop. Per Car
Iowa	2,220,321	172,791	13
Nebraska	1,271,375	101,201	13
California	2,938,654	212,918	14
Kansas	1,829,545	114,364	16
South Dakota	698,509	44,271	16
Minnesota	2,279,603	137,500	17
North Dakota	739,201	41,761	18
Arizona	255,544	12,122	19
Michigan	3,054,854	159,639	19
Montana	459,494	24,585	19
Indiana	2,816,817	139,138	20
Ohio	5,150,356	252,179	20
Wisconsin	2,500,350	117,603	21
Colorado	962,060	44,180	22
Connecticut	1,244,479	56,048	22
Texas	4,429,566	197,687	22
Nevada	106,734	4,609	23
Wyoming	179,559	7,125	25
Illinois	6,152,257	251,300	25
Washington	1,534,221	62,546	25
Vermont	363,699	14,251	26
Maine	772,489	28,951	27
Massachusetts	3,719,156	136,790	27
Oregon	835,741	30,917	27
Delaware	213,380	7,520	28
Dist. of Columbia	363,980	13,118	28
Rhode Island	614,315	21,406	29
New Hampshire	442,506	14,338	31
Missouri	3,410,692	107,865	32
Utah	434,083	13,507	32
Idaho	428,586	12,996	33
Pennsylvania	8,522,017	230,648	37
New York	10,273,375	279,406	37
New Jersey	2,948,017	75,108	39
Maryland	1,362,807	33,364	41
Oklahoma	2,202,081	52,718	42
New Mexico	410,283	8,028	50
Virginia	2,192,019	35,426	62
Georgia	2,856,065	45,775	62
Florida	893,493	14,220	63
North Carolina	2,402,738	35,150	68
West Virginia	1,386,038	20,437	68
Tennessee	2,288,004	31,400	73
Kentucky	2,379,639	31,500	76
South Carolina	1,625,475	19,000	86
Mississippi	1,951,674	20,474	95
Alabama	2,332,608	22,354	104
Louisiana	1,829,130	16,800	108
Arkansas	1,789,723	14,704	118
Total	102,017,312	3,541,738	
Average for United States			29

Dealers, Garages, Machine Shops and Supply Houses in the United States

State	Dealers	Garages	Machine Shops	Cos. Having Supply Dept.	Supplies Exclusively	Total
Alabama	172	109	74	37	35	278
Arizona	86	82	51	24	12	152
Arkansas	174	96	59	29	18	245
California	1,096	1,211	739	200	151	2,032
Colorado	346	312	177	80	22	520
Connecticut	394	431	211	50	70	713
Delaware	65	62	27	11	5	90
District of Columbia	57	56	36	8	24	140
Florida	246	272	163	64	45	464
Georgia	315	266	123	33	46	549
Idaho	151	100	53	23	19	207
Illinois	1,857	1,645	968	390	131	2,889
Indiana	984	795	409	247	65	2,497
Iowa	1,619	1,322	681	360	64	196
Kansas	986	774	380	266	33	1,445
Kentucky	291	230	82	62	24	413
Louisiana	120	67	45	31	18	170
Maine	279	262	124	80	19	456
Maryland	222	242	125	75	36	403
Massachusetts	771	328	421	180	141	1,520
Michigan	986	822	349	132	88	1,535
Minnesota	1,155	833	458	271	59	1,550
Mississippi	133	84	50	40	13	193
Missouri	810	639	418	222	81	1,310
Montana	240	205	117	60	14	345
Nebraska	810	647	285	218	29	1,091
Nevada	57	52	28	19	4	84
New Hampshire	192	214	107	59	10	319
New Mexico	102	73	42	33	78	228
New Jersey	621	844	411	192	6	1,170
New York	2,003	2,217	1,172	456	321	3,735
North Carolina	306	233	111	85	21	421
North Dakota	537	339	198	119	9	703
Ohio	931	1,347	542	425	172	2,589
Oklahoma	386	311	125	136	27	581
Oregon	205	231	130	49	30	315
Pennsylvania	1,677	1,682	776	452	113	2,673
Rhode Island	85	141	91	16	19	262
South Carolina	156	113	58	48	19	248
South Dakota	442	308	155	35	7	584
Tennessee	188	136	75	20	40	285
Texas	626	488	267	47	87	1,059
Utah	88	62	33	15	15	143
Vermont	187	156	83	33	11	286
Virginia	230	158	111	41	44	391
Washington	356	318	168	25	54	599
West Virginia	199	143	52	24	13	246
Wisconsin	1,016	874	410	135	47	182
Wyoming	76	56	37	13	2	103
Hawaii	6	7	3	..	1	9
West Indies	25	20	5	1	1	32
Canada	854	760	358	3	95	1,252
Mexico	8	11	3	1	2	15
Total	25,924	23,686	12,171	5,675	2,503	40,912

Chandler Ships 993 Cars

CLEVELAND, March 16—The Chandler Motor Car Co. shipped from Feb. 26 to March 10 just 993 cars. This compares with 515 cars in the same period a year ago. At the current rate of business it is likely that the company will pass the 20,000-car mark in its production for this year, compared with 13,000 in 1916.

St. Paul Dealers Organize

ST. PAUL, March 15—Seventeen of 30 St. Paul dealers were at the first meeting last night to form an organization for co-operation to eliminate evils with which motor ca dealers are pestered and to promote good will among members. The meeting was at a dinner at the St. Paul Association of Public and Business Affairs, and is the first of a series of weekly meetings on Wednesdays. Committees will report, including one on ways and means and constitution and by-laws—M. J. Osborn, Leroy Eschner, L. C. Roller, H. A. Brandtjen, M. B. Gilman and C. H. Green. A. A. VanDyke is president and J. E. Murphy secretary, until the permanent organization. Dealers already on the roll are: J. Harry Groat, H. P. Conrad, M. B. Gilman, F. G. Kratzer, G. A. Zirbel, L. C. Roller, A. H. Clark, H. A. Brandtjen, A. A. Van Dyke, F. H. Webster, C. H. Green, Leroy Eschner, G. A. Zirbel, C. R. Wildung, H. L. Roberts, C. A. Hoskins, E. R. Boutell.

Car Registrations Jan. 1, 1917

New York	279,406	Kentucky	31,500
Ohio	252,179	Tennessee	31,400
Illinois	251,300	Oregon	30,917
Pennsylvania	230,684	Maine	28,951
California	212,918	Montana	24,585
Texas	197,687	Alabama	22,354
Iowa	172,791	Rhode Island	21,406
Michigan	159,639	Mississippi	20,474
Indiana	139,138	W. Virginia	20,437
Minnesota	137,500	S. Carolina	19,000
Massach'etts	136,790	Louisiana	16,800
Wisconsin	117,603	Arkansas	14,704
Kansas	114,364	N. Hampsh'e	14,338
Missouri	107,865	Vermont	14,251
Nebraska	101,201	Florida	14,220
New Jersey	75,108	Utah	13,507
Washington	62,546	Dist. of Col.	13,118
Connecticut	56,048	Idaho	12,996
Oklahoma	52,718	Arizona	12,122
Georgia	45,775	New Mexico	8,028
S. Dakota	44,271	Delaware	7,520
Colorado	44,180	Wyoming	7,125
N. Dakota	41,761	Nevada	4,609
Virginia	35,426		
N. Carolina	35,150	Total	3,541,738
Maryland	33,364		

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Mode	Motor	S. A. E.	Ignition	Carbureter	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-44	6-3½x4½	25	3 Remy	Stmbg	Remy	DP	3	122	32x4	SS	1195	†1250	1195	1495	1820	....	....
ALLEN																	
Classic	4-3½x5	22.5	Wsths	Stmbg	Wsths	C	3	112	32x3½	SS	....	895	†895	1175	1195	....	1195
AMERICAN-SIX																	
A	6-3 x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1285	....	....	....	....	....
AMS-STERLING																	
17	4-3½x4½	15	6 Bosch	Stmbg	Bosch	DP	3	110	30x3½	SS	...	....	....	. ..	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25.4	Wsths	Own	Wsths	DP	3	120	33x4	SS	1275	1250	*1250	....	....	....	....
APPERSON																	
6-17	6-3½x5	29	4 Remy	Rafld	Bijur	DP	3	130	34x4	SS	1750	1690	1750	....	....	....	....
8-17	8-3½x5	31.2	Remy	Johnson	Bijur	DP	3	130	35x4½	SS	2000	....	2000	....	....	....	....
AUBURN																	
6-39	6-3½x5	23.4	Remy	Rafld	Remy	DP	3	120	34x4	SS	1145	1145	†1145	....	....	....	1320
6-44	6-3½x5½	29	4 Delco	Rafld	Delco	DP	3	131	35x4½	SS	....	†1535	1535	....	....	....	1785
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142½	34x4½	SS QD	3750	3750	4000	4550	4950	5250	....
BIDDLE																	
D	4-3½x5½	22.5	Dixie	Zenith	G & D	DP	4	122	32x4	QD	2200	2350	†2275	....	....	3800	3900
BOUR-DAVIS																	
17	6-3½x4½	25.3	Remy	Stmbg	G & D	DP	3	118	32x4	QD	....	1250	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U. S. L.	C	3	125	34x4½	SS	†6500	....	....	....	7500	7700	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Mayer	Splitdorf	C	3	105	30x3½	QD	685	685	....	....	. ..	....	810
8-38	8-3 x3½	28.8	Remy	Zenith	Aplco	C	3	114	32x3½	QD	‡985	985	....	....	....	....	....
4-38	4-3½x5½	18	9 Remy	Mayer	Aplco	C	3	114	32x3½	QD	‡785	785	....	....	....	....	....
BUICK																	
D4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	660	675	....	....	....	....	...
6-44-47	6-3½x4½	25	3 Delco	Marvel	Delco	C	3	115	34x4	SS	1040	1070	....	‡1440	1835	....	....
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DD	3	124	34x4½	SS	....	....	1385	....	....	....	....
CADILLAC																	
55	8-3½x5½	31.2	Delco	Own	Delco	D	3	{132 / 125	37x5 / 36x4½	SS	†2240	....	2240	2960	....	3760	2835
CASE																	
T17	4-3½x6	21.0	Conn	Rafld	A-Lite	C	3	120	34x4	QD	†1190	. ..	1190	....	....	....	....
CHALMERS																	
6-30	6-3½x4½	25.4	Remy	Stmbg	Wsths	DP	3	{115 / 122	32x4 / 34x4	SS	1250	1250	1350	1625	1850	2550	....
CHANDLER																	
17	6-3½x5	27.3	Bosch	Rafld	G & D	D	3	123	34x4	SS	†1395	....	1395	1995	1995	2695	1995
CHEVROLET																	
4-90	4-3½x4	21.7	Conn	Zenith	A-Lite	C	3	102	30x3½	C	535	550	....	....	....	....	625
F5-F2	4-3½x4	21.7	Conn	Zenith	A-Lite	C	3	108	32x3½	SS	800	800	....	....	....	....	....
D	8-3½x4	36.45	Conn	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	†1385	....	....	....	....
COLE																	
8-60	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	†1795	....	1795	2295	....	....	....
CROW-ELKHART																	
CE-33-35	4-3½x5	19.6	Conn	Carter	Dyneto	D	3	114	32x3½ 31x4	SS	†845	795	....	....	....	....	935
DANIELS																	
8	8-3½x5	33	8 Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	†2800	2800	2800	3800	4000	4000	. ..
DAVIS																	
H & I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	1195	1195	1195	1595	1795	....	1995
J	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	124	34x4½	....	....	1495	1495	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25	3 Conn	Ball	A-Lite	D	3	119	33x4	SS	‡1250	1250	...	1525	....	....	1550
DISPATCH	4-3½x5	22.5	Bosch	Rafld	U.S.L.	D	4	120	36x3½	QD	1135	....	1210	1400	....	....	....
DIXIE FLYER																	
L3	4-3½x5	16.9	Conn	Carter	Dyneto	C	3	112	32x3½	SS	....	845	....	....	1275	....	....
DOBLE	2-cyl. 5x4 double-acting steam engine. Boiler pressure 600-lbs.												2500				
DODGE BROTHERS																	
	4-3½x4½	24	Delco	Stewart	N.E.	D	3	114	32x3½	S	785	785	....	950	1185	....	950
DORRIS																	
I-B-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	3	108	36x4½	SS	....	....	2475	3250	3350	3675	....
DORT																	
9	4-3½x5	16.9	Conn	Carter	Wsths	C	3	105	30x3½	QDC	†696	696	....	....	1065	....	615

Model	Motor	S. A. E.	Ignition	Carbureter	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
LOZIER																	
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	.	....	1695	....	....	....	....
82	6-3½x6	36.0	Eismn	Rafld	G & D	D	3	132	36x4½	SS	.	....	2775	....	....	....	....
LUVERNE																	
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD		132	35x4½	SS	....	....	1500	....	....	....	....
MADISON																	
4	....	....	....	....	....	... .		120	34x4	..	....	....	....	....	....	....	....
	6-3½x5	23.4	Remy	Rafld	Remy	DD	3	115	34x4	SS	†1285	1285	1735	....	....	....	....
	.....	...	....	....	....	... .		124	...	..	....	....	....	....	....	....	....
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	36x3½	SS	695	....	....	....	....	....	....
MAJESTIC																	
M	8-3 x5	28.8	A.Kent	....	R & M	DP	3	125	32x4	....	†1500	1650	1650	....	....	....	....
A	8-3½x5	33.8	A.Kent	....	R & M	DP	3	135	35x5	....	†3000	3000	3000	....	....	....	....
MARION HANDLEY																	
6-40	6-3½x5	23.4	Wsths	Stmbg	Wsths	DD	3	120	32x4	SS	†1275	....	1275	....	....	....	....
6-60	6-3½x5½	29.4	Wsths	Stmbg	Wsths	DD	3	125	35x4½	SS	†1575	....	1575	....	....	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bosch	C	3	136	34x4½	QD	††3100	3050	3100	....	4100	4550	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K-D	Simms	C	3	103	30x3½	C	620	635	....	865	985	....	....
McFARLAN																	
	6-4½x6	48.6	Bosch	Stmbg	Wsths	DP	3	136	35x5	QD	3750	3800	3500	....	....	....	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QDC	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	115	32x4	QDC	3400	Raceabout,	3250	..	....	.. ..	....
METZ																	
25	4-3½x4	24	Dixie	A.W.T.	G & D	F		108	32x3½	C	600	600	....	...	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafld	Splitdorf	C	3	120	32x4	SS	1150	1150	....	....	....	....	300x
C-42	6-3½x5	29.4	Conn	Rafld	Wsths	C	3	127	34x4	SS	‡1425	1425	1460	1995	2175	2785	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1495	1495	....	....	....	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1840	....	1840	2490	2440	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Heinse	D	3	108	32x3½	SS	895	895	....	....	....	....	....
N-O	6-3½x4½	25.4	Heinse	Stmbg	Heinse	D	3	115	33x4	SS	1095	1095	....	....	1295	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	DC	565	....	....	....	965	....	....
M-4	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	DC	....	985	....	....	....	....	....
MOON																	
6-43	6-3½x4½	25.3	Delco	Rafld	Delco	DD	3	118	33x4	SS	‡1295	1295	....	....	....	....	1450
6-66	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	†1690	....	1690	1690	2350	....	....
MURRAY																	
70-T	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2500	....	2500	....	....	.Chassis	2000
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafld	Wsths	C	3	128	34x4½	QDR	†1850	†1850	1850	2500	2450	....	....
Twelve	12-2½x4½	39.7	Delco	Rafld	Bijur	C	3	128	34x4½	QDR	†2250	†2250	2250	2900	2850	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	....	....	....	....	2200	....	....
OAKLAND																	{ 995
34	6-2½x4½	19.0	Delco	Marvel	Delco	C	3	112	32x4	SS	‡875	875	....	....	....	....	1020
50	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	34x4½	SS	....	....	1585	....	....	....	....
OLDSMOBILE																	
45	8-2½x4½	26.4	Delco	Johnson	Delco	C	3	120	33x4	SS	1295	1295	1367	1775	1850	2575	1775
46	6-2½x4½	18.9	Delco	Johnson	Delco	C	3	112	32x4	SS	‡1095	1095	....	....	....	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	112	32x4	SS	‡835	850	....	1250	1450	....	....
85B6	6-3½x4½	25.3	Conn	Tltsn	A-Lite	C	3	116	32x4	SS	‡970	985	....	1385	1585	....	....
88-6	6-3½x5½	29 4	Conn	Tltsn	A-Lite	C	3	125	35x4½	SS	....	....	1325	....	....	....	....
90	4-3½x5	18.2	Conn	Tltsn	A-Lite	C	3	{104 / 106	31x4	C	650	665	†750	....	....	....	....
OWEN																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	..	125	34x4½	SS	....	3300	...	3650	....	4350	....
O-36	6-3½x5½	33.7	Bosch	Zenith	O-M	OM	..	136	35x5	SS	‡3950	†3950	3950	....	....	5000	....
PACKARD																	
2-35								{135					3500	3500		4900	
2-25	12-3 x5	43.2	Bijur	Own	Bijur	DD	3	136	35x5	QDC	3050	3050	3050	4150	....	4450	....

*6-passenger. †4-passenger ‡8-passenger.

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DREXEL																			
R-30-35	4-3½x5	19.6	Bosch	Stmbg	Bijur	C	3	112	33x4	....	985	985	....	....	....	....	....
	4-3½x5	19.6	Bosch	Stmbg	Bijur	D	3	118	34x4	....	....	1650	....	....	....	....	....
ELCAR																			
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS	845	845	†845	....	....	....	....
ELGIN																			
	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	116	33x4	....	†985	985	....	....	....	....	....
EMERSON																			
Four	4-3½x4	24.0	A.Kent	Waltham	....	D	3	110	30x3½	C	....	545	....	....	....	....	....
EMPIRE																			
45	4-3½x5	24.0	A-Lite	Stmbg	A-Lite	C	3	116	33x4	SS	....	960	....	....	....	....	....
60-R	6-3½x4½	25.6	Conn	Stmbg	A-Lite	C	3	120	34x4	SS	†1145	....	....	....	1625	....	....
70	6-3½x4½	25.6	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1235	....	....	....	....	....
ENGER																			
12	12-2½x3½	34.2	Wsths	Stmbg	Wsths	DP	3	116	32x4	SS	....	1295	....	....	....	....	....
4	4-3½x4½	21.7	A.Kent	....	....	C	3	106	32x3½	....	....	695	....	....	....	....	....
FIAT																			
55	4-5½x6½	42	Bosch	Zenith	Wsths	D	4	140	35x5	QDC	....	....	5500	....	....	6500	....
FORD																			
T	4-3¾x4	22.5	Own	{Holly {Kngstn	....	D	2	100	30x3½	C	345	360	....	505	645	....	....
FOSTORIA																			
	4-3 x4½	14.4	Remy	Zenith	....	D	3	108	30x3½	C	....	695	....	....	....	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	32x4	SS	1900	1900	....	2750	2850	3000	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	....	1250	....	....	1450	....	....
GRANT																			
K	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	112	32x3½	....	†875	875	....	1010	1050	....	....
HAL TWELVE																			
	12-2½x5	39.7	....	Stmbg	Wsths	DP	3	135	34x4½	SS	2600	†2600	2600	....	3500	4500	....
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	23.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN	4-3½x5½	16.9	Bosch	Special	Remy	C	3	106	30x3½	....	....	595	....	....	....	....	....
HAYNES																			
36	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1595	....	....	2260	....	....
37	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1725	....	1725	....	2390	....	....
40	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	121	34x4½	SS	....	2095	....	....	2760	....	....
41	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2225	....	2225	....	2890	....	....
HOLLIER																			
186	6-3 x4½	21.6	Remy	Stewart	A-C	C	3	116	32x3½	SS	....	985	....	....	....	....	....
178	8-3 x4½	28.8	A.Kent	Stewart	Apleo	C	3	116	34x4	SS	†1185	1185	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS	1650	....	1650	1950	2175	2925	....
HUPMOBILE																			
	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	119	34x4	SS	1285	1285	....	....	1735	....	....
N-U	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	134	35x4½	SS	....	....	1440	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	875	925	†950	....	1325	....	....
JACKSON																			
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS	1395	1395	†1495	....	2095	....	1605
350	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	112	32x4	SS	....	1195	....	....	....	....	....
JEFFERY																			
Four	4-3½x5½	22.5	Delco	Stmbg	Bijur	DP	3	116	34x4	SS	1065	....	1095	....	1260	....	1260
Six	6-3½x5½	29.4	Dixie	Rafid	Bijur	DP	3	125	34x4	SS	1435	....	1465	....	1630	....	1630
JORDAN																			
Sixty	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DD	3	127	35x4½	SS	1795	†1895	1795	....	....	....	....
KING																			
E	8-3 x5	28.8	A.Kent	Ball	W. Lnrd	DP	3	120	34x4	SS	†1585	†1585	1585	....	2150	....	....
KISSEL																			
642	6-3½x5½	31.54	Eismn	Stmbg	Own	DD	3	128	34x4	SS	....	1700	1900	....	2050	....	....
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	33x4	SS	†1295	1295	....	1735	2050	....	1735
Twelve	12-2½x5	39.7	Delco	Stmbg	Own	D	3	....	....	....	....	....	2250	....	....	....	2650
KLINE																			
638	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1275	1295	†1295	....	....	....	....
LEXINGTON																			
6-O-17	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	†1185	1185	....	1350	1350	....	....
6-P	6-4½x5½	40.8	A.Kent	Stmbg	Wsths	C	3	144	36x4½	QD	....	....	2875	....	..	....	....
LIBERTY																			
6	6-3½x4½	23.4	Delco	Rafid	Delco	DP	3	115	32x4	SS	†1195	1195	....	1795	1395	....	....
LOCOMOBILE																			
R-7	6-4½x5	43.3	Bosch	Ball	Wsths	DD	4	139	37x5	QDC	†5150	*5000	5000	....	....	6200	....
M-7	6-4½x5½	48.6	Bosch	Ball	Wsths	DD	4	142	37x5	QDC	†6050	*5950	5950	....	....	7200	....
PAIGE																			
6-38	6-3½x5	23.4	Remy	Rafid	G & D	D	3	117	32x4	SS	1175	1175	....	....	1775	....	....
6-46	6-3½x5½	29.4	Remy	Rafid	G & D	D	3	127	35x4½	SS	†1695	....	1495	2100	2300	2750	....
PARTIN-PALMER																			
20	4-3½x4½	15.6	Conn	Schebler	A-C	DD	3	96	30x3½	C	545	....	....	....	....	....	....
32	4-3½x5	19.6	Conn	Carter	Disco	DD	3	110	32x3½	C	....	695	....	....	....	....	....
PATERSON																			
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	32x4	C	†1195	1165	1195	....	....	....	....
PATHFINDER																			
3-A, B, C	12-2½x5	39.7	Delco	Stmbg	Delco	DD	3	135	35x5	SS	3250	3250	3250	....	....	....	....
PEERLESS																			
56-2	8-3½x5	33.8	A.Kent	Special	A-Lite	DD	3	125	35x4½	SS	†2090	....	2090	2750	2890	3590	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	36x4½	QDC	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	37x5	QDC	5400	5400	5000	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	38x5½	QDC	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Tltsn	Delco	DP	3	119	32x4	SS	†1200	1200	....	....	....	....	....
PREMIER																			
6-B	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	†1895	....	1895	....	2900	3150	....
PRINCESS																			
4-36	4-3½x4½	22.5	Splitdorf	Schebler	Disco	D	3	108	32x3½	....	775	775	‡775	....	....	....	....
PULLMAN																			
424-32	4-3½x4½	22.5	Dixie	Stmbg	Splitdorf	D	3	114	31x4	SS	860	860	†860	....	....	....	....
REGAL																			
4-32	4-3½x4½	19.6	A. Kent	Carter	A-Lite	C	3	108	30x3½	DC	....	745	....	....	....	....	....
F	8-3 x4½	28.8	....	Johnson	Dyneto	C	3	115	33x4	SS	1200	....	....	....	....	....	....
REPUBLIC																			
E	6-4½x5	43.3	Delco	Rafid	Delco	C	4	133	36x4½	SS	....	†2950	2950	....	....	....	....
REO																			
M	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	†1250	1250	....	1750	....	....
R	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS	‡875	875	....	....	....	....	1025
ROAMER																			
R.A.	6-3½x5	23.4	Bosch	Stmbg	Bijur	D	3	127	34x4	SS	2150	1850	....	....	....	....	....
ROSS																			
C	8-3½x5	33.8	A.Kent.	Zenith	W.Lnrd.	DD	3	130	35x4½	SS	‡1550	....	1550	....	....	....	....
SAXON																			
B-5-R	4-2½x4	12.1	A.Kent	Rebh	Wagner	DD	3	96	30x3	DC	495	....	....	....	....	....	....
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	....	865	....	....	....	....	....
SCRIPPS-BOOTH																			
D	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	2575	....	....	1460
G	4-8½x4	24.5	Remy	Zenith	Remy	C	3	110	30x3½	C	935	....	....	1450	....	....	....
SIMPLEX																			
5	6-4½x6½	45.9	Eismn	Nwcmb	Bosch	D	4	143½	37x5r	QDC	Chassis	6000	....	....	....	....	....
SINGER																			
17	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	136	35x5	QD	3800	†3800	3800	....	....	4750	....
STANDARD																			
8	8-3½x5	33.8	Splitdorf	Zenith	Apleo	D	3	127	35x4½	....	†1950	....	2000	....	2500	3500	....
STANLEY																			
Steamer	2-4 x6	....	....	....	....	..	..	130	34x4½	SS	‡2300	2200	2300	....	....	....	....
STEARNS																			
SKI4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	QDC	††1495	1495	....	2050	....	2900	2050
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	123	35x4½	QDC	†2250	....	2250	2900	....	3500	....
STEPHENS																			
60-65	6-3½x4½	25.3	Conn	Zenith	A-Lite	DD	3	115	32x4	....	‡1150	1150	....	....	....	....	....
STUDEBAKER																			
SF-4-40	4-3½x5	24.0	Remy	Schebler	Wagner	C	3	112	34x4	SS	†985	....	985	....	....	....	1185
ED-6-50	6-3½x5	36.32	Remy	Schebler	Wagner	C	3	122	35x4½	SS	‡1250	....	1250	1750	1700	2600	1450
STUTZ																			
R	4-4½x5½	36.1	Bosch	Stmbg	Remy	C	3	130	34x4½	SS	2375	†2550	*2550	....	....	....	....
SUN																			
17	6-3½x5	23.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1145	1095	1145	....	1295	....	....
VELIE																			
28	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	115	32x4	SS	1115	1135	†1135	1750	1685	....	....
27	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	4	124	35x4½	SS	....	....	1600	....	....	....	{2190
WESTCOTT																			{2090
S-17	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1590	1590	1690	....	....	....	
WHITE																			
GAH	4-3½x5½	22.5	Bosch	Own	Own	P	4	115	32x4	QDC	‡2650	2700	....	....	....	....	....
GED	4-4½x6½	28.9	Bosch	Own	Own	P	4	133½	36x4½	QDC	3750	....	3800	....	....	....	....
16-Valve	4-4½x5½	28.9	....	Own	L.N.	P	4	137½	37x5	....	....	....	4600	....	....	....	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	121	34x4½	SS	....	....	1285	....	1950	1950	....
88-8	8-3½x4	36.4	Conn	Tltsn	A-Lite	C	3	125	34x4½	SS	....	....	1950	....	....	....	....
WILLYS																			
88-6	6-3½x5½	29.4	Conn	Tltsn	A-Lite	C	3	125	35x4½	SS	....	....	1325	....	....	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	2685	2685	2735	3600	3900	3900	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4500	4750	4750	....

*6passenger. †4passenger. ‡3passenger.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Tltsn" Tillottson, "Atzr" Atomizer, "Rebh" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myers. NOTE—"37½x5½r" means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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Davenport Becoming Tractor Center

DAVENPORT, March 17—The Tri-Cities is rapidly becoming a tractor producing center. The Moline Plow Co. is producing 18 to 20 Universal tractors a week, yet the company cannot fill its present orders.

An addition is now being constructed that will bring the main length of building up to 1112 ft. When that is completed work will be immediately started on a stock room 200 x 200 ft.

The first Universal tractor was produced in July, 1916. In November the capacity of the plant was doubled. Today the company has outgrown the 5½ acres of floor space, and is about 1000 machines behind in its orders.

The present plans are to double the capacity of the plant each year, as long as the sales justify the increase.

The Velie Motor Vehicle Co. has purchased 15 acres of ground for a tractor plant, and is producing a few experimental tractors.

The Heider tractor is also made here by the Rock Island Plow Co.

Moreland Men Convene

LOS ANGELES March 17—A three-day convention of distributors, dealers and salesmen of the Moreland Motor Truck Co. representing the Pacific coast territory was held last week. More than 100 dealers were in attendance. Business sessions were held at the Athletic club and a banquet closed the session Saturday evening.

Dort Dealers Gather

DALLAS, TEXAS, March 17—Dort dealers in Texas were entertained last week in the Palm Garden of the Adolphus, as the guests of the Frawley Motor Co., North Texas Dort distributer. Geo. C. Chapman, manager of the distributing concern, was toastmaster. There were short talks regarding business conditions by various of the diners. These speakers predicted that North Texas will more than double the number of cars it has during another year. Those attending were: Geo. C. Chapman, manager, and J. K. Gregory, assistant manager Frawley Motor Co., Dallas; R. L. Aspley, Davis Motor Co., Denison; Jesse D. Sawyer, Hubbard City; Walter Hamilton and W. S. F. Suddeth, Kaufman; C. Arthur Wyatt, Fort Worth; J. W. Head, Weatherford; E. R. Eversburg, Fort Worth; John G. Wyatt, Fort Worth; Will Moore, Waxahachie; W. P. Chandler, Farmersville; Lester Black, Mount Pleasant; C. E. Cunningham, St. Jo; H. L. Carver, Farmersville; H. L. Roach, Bardwell; J. W. N. O'Branian and W. H. Hill, McKinney; W. J. Walker, Marlin; E. R. Jackson, J. M. Mitchell, Avinger; Clarence Urban, Corsicana, and the following members of the local force: A. B. Wright, sales manager; J. B. Bushwall, W. C. Jackson, F. L. Schumpert, Jr., H. C. McClure, John Allen, W. R. Roberts, R. B. Brown, C. E. Vernoy and George Chapman, Jr.

Peerless Gets More Room

CLEVELAND, March 19—The Peerless Motor Car Co. shortly will remove its passenger car departments into the new group of factory buildings which have been erected. This group gives about 500,000 additional feet of floor space.

Oregon Gets an Appraiser

PORTLAND, ORE., March 19—The members of the Dealers' Motor Car Association of Oregon, which embraces virtually every automobile dealer in the Portland territory, decided at a regular meeting to establish an official appraisal authority for used cars, and will abide by this as the maximum value that can be placed on the old car.

Under the new appraisal arrangement a dealer is required to refer all used cars submitted to him to what is to be known as the Portland Automobile Trade Association, which is to undertake the responsibility of fixing the market price of the cars.

Both the dealers and the car owners will be obliged to abide by the fixed price unless the car remains in the hands of the owner for a period of 30 days following which a new appraisal may be ordered. Ford cars, offered for trade toward a new Ford, are exempt from the agreement. A charge of $1 will be made for each appraisal. All dealers will be duty bound to abide by the word of the association making the appraisal, which is to govern all transactions as to the trading value.

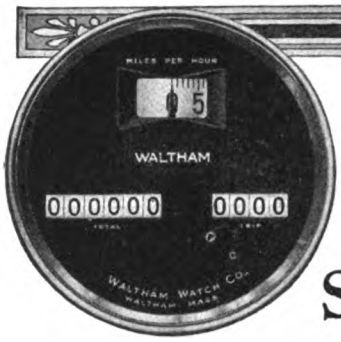
Coming—THE SHOW CALENDAR—*Events*

Paterson, N. J.	Sixth Annual Paterson Automobile Dealers Assn., Auditorium; Mgr.: Robert A. Mitchell.	Mar. 19-24
Cedar Rapids, Ia.	Cedar Rapids Automobile Trade Assn., Coliseum.	Mar. 19-24
Denver, Col.	Mammoth Hall. H. F. Blackwell, Mgr.	Mar. 20-25
Trenton, N. J.	Trenton Automobile Trade Assn., Armory; Mgr.: John L. Brock.	Mar. 21-24
Raleigh, N. C.	City Auditorium, John Kelley, Mgr.	Mar. 21-24
Mankato, Minn.	Third Annual, Manakato Retail Automobile Dealers' Assn.	Mar. 22-24
Deadwood, S. D.	Fifth Annual; Mgr.: J. E. Nelson.	Mar. 27-31
Clinton, Ia.	Clinton Automobile Dealers Assn., Coliseum; management: Executive Committee.	Mar. 28-31
Washington, D. C.	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-18
Stockton, Cal.	Second Annual San Joaquin Auto Trades Assn.; Mgr.: Samuel S. Cohn.	April 4-7
Milwaukee, Wis.	First Annual Used Car, Milwaukee Automobile Dealers, Inc., Auditorium; Bart J. Ruddle, Mgr.	Apr. 20-26
Spokane, Wash.	Interstate Fair	Sept. 3-9
Milwaukee, Wis.	Third Annual Fall State Fair Park, West Allis.	Sept. 9-15
Dallas, Tex.	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-28
Providence, R. I.	Rhode Island Automobile Dealers' Assn., State Armory.	April 2-7

General and Racing

Los Angeles, Cal.	Los Angeles to Salt Lake City, Utah.	April
Uniontown, Pa.	Universal Trophy and Stock Car Races, Uniontown Speedway Assn.	May 10
New York, N. Y.	Metropolitan Race, Sheepshead Bay.	May 19
Indianapolis, Ind.	Championship	May 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	May 30
Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6
Chicago, Ill.	Championship	June 9
Cincinnati, O.	Race	June 23
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.	Championship	July 4
Tacoma, Wash.	Championship	July 4
Des Moines, Ia.	Championship	July 14
Kansas City, Mo.	Race	Aug. 4
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.	Championship	Sept. 3
Providence, R. I.	Championship	Sept. 15
New York, N. Y.	Championship	Sept. 29
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Oct. 6
Kansas City, Mo.	Championship	Oct. 6
Chicago, Ill.	Race	Oct. 13
New York, N. Y.	Race	Oct. 27
Walla Walla, Wash.	Track Race, R. A. Hiller, Mgr.	May 30
Kansas City	Speedway (dirt)	June 16
Visalia, Cal.	Road Race	July 4
Spokane	Track Race, R. A. Hiller, Mgr.	July 4
Benton Harbor, Mich.	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Missoula, Mont.	Track Race, R. A. Hiller, Mgr.	July 15
Intercity Reliability	American Auto. Assn.	July 17-19
Anaconda, Mont.	Track Race, R. A. Hiller, Mgr.	July 22
Great Falls, Mont.	Track Race, R. A. Hiller, Mgr.	July 29
Billings, Mont.	Track Race, R. A. Hiller, Mgr.	Aug. 5
Red Bank, N. J.	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.	Hill Climb	Sept. 8
Allentown, Pa.	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
New York	Speedway Races	Sept. 29
Uniontown, Pa.	Speedway Races	Sept. 30
Danbury, Conn.	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Richmond, Va.	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13

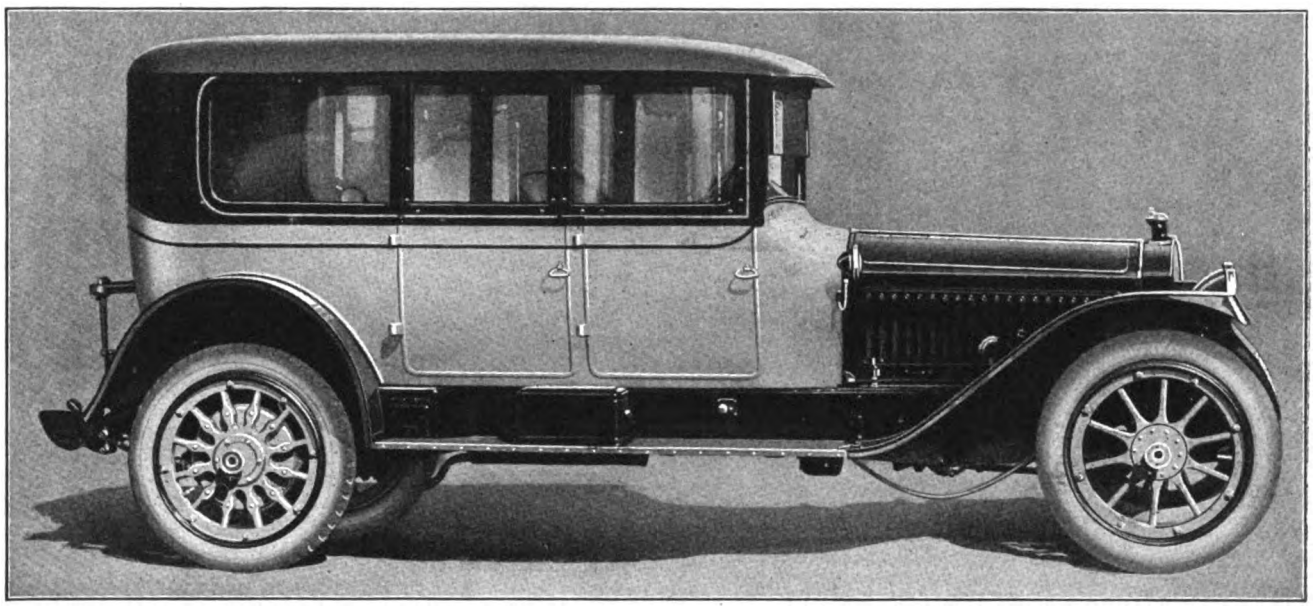
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The WALTHAM COMBINATION

Speedometer Automobile Clock





IN THE PACKARD

For the reason that a motor car is only as great as its component parts every item of Packard equipment *must* be of the highest order of merit.

Packard engineers have adopted the Waltham Speedometer as standard equipment because, after exhaustive tests, they are convinced that it is the best speedometer obtainable. They equip with the Waltham Automobile Clock because, by virtue of its special construction, it is the *only* competent automobile timekeeper made.

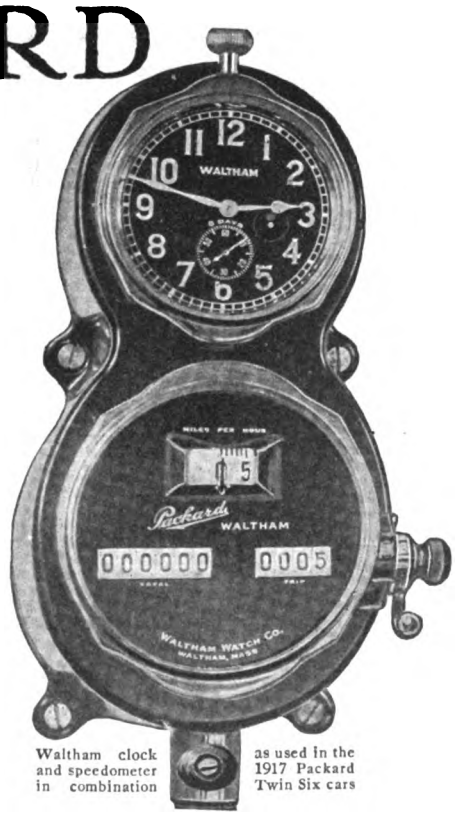
Wouldn't *your* car be a better equipped car if it carried these two instruments of Waltham accuracy and dependability?

Speedometer

Registers speed as low as ½ mile per hour.
Indicates speed changes instantly.
Quick reset on trip odometer.
Proof against heat and cold.
All figures legible from tonneau.
Patented flexible driving shaft of absolute dependability.
Jeweled bearing on head.

Automobile Clock

Two mainsprings.
Fifteen jewels.
Rewinding signal on dial which gives notice three days before clock runs down.
Adjusted to all temperatures.
Proof against vibration and road shocks.
Runs 11 days with one winding.
Has Chronometer accuracy.

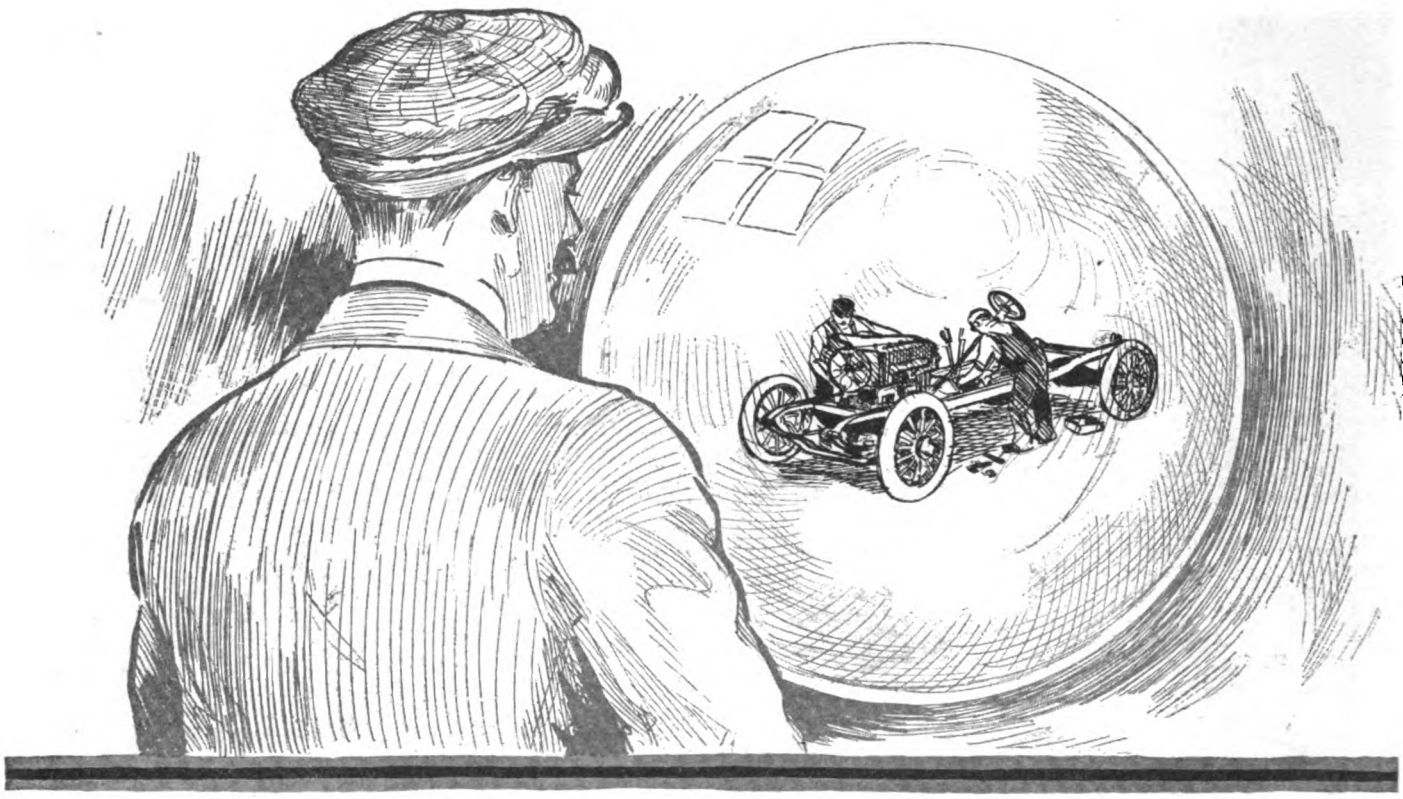


Waltham clock and speedometer in combination as used in the 1917 Packard Twin Six cars

Waltham service stations are being established all over the world. Applications invited.

WALTHAM WATCH COMPANY, WALTHAM, MASS.

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LOOKING INTO THE FUTURE

When buying a new car or truck or having an old one overhauled *look into the future!*

Imagine, if you can, what that car will be like a year or two later.

It may have a world of power today. It may be smooth running, efficient and almighty economical.

But how long will it remain that way? How long will it be before it starts to rattle and knock, to lose its firm feel and its power?

It all depends upon the quality of the bushings used.

No car can wear longer than its wear-subjected parts—the bushings.

The bushings are way in the interior of the mechanism, so when they show signs of wear the car must be completely torn down to take the old bushings out and put new ones in.

When buying a new car remember that QUALITY in the bushing parts is what distinguishes between long-lived cars and short-lived cars.

The superior quality of NON-GRAN is acknowledged the whole world over.

NON-GRAN costs more, but NON-GRAN has made possible the truly remarkable service which is being given today by so many of America's cars.

When having your car overhauled, specify that all worn bushings be replaced with NON-GRAN bushings. Protect yourself against future overhauling expenses. Add to the service life and resale value of your car.

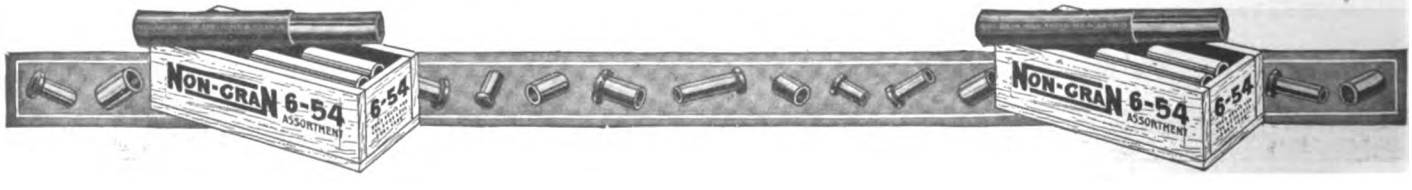
All good repairmen carry an assortment of NON-GRAN cored bars from which to make these bushings for you at overhauling time.

Be sure to ask for NON-GRAN.

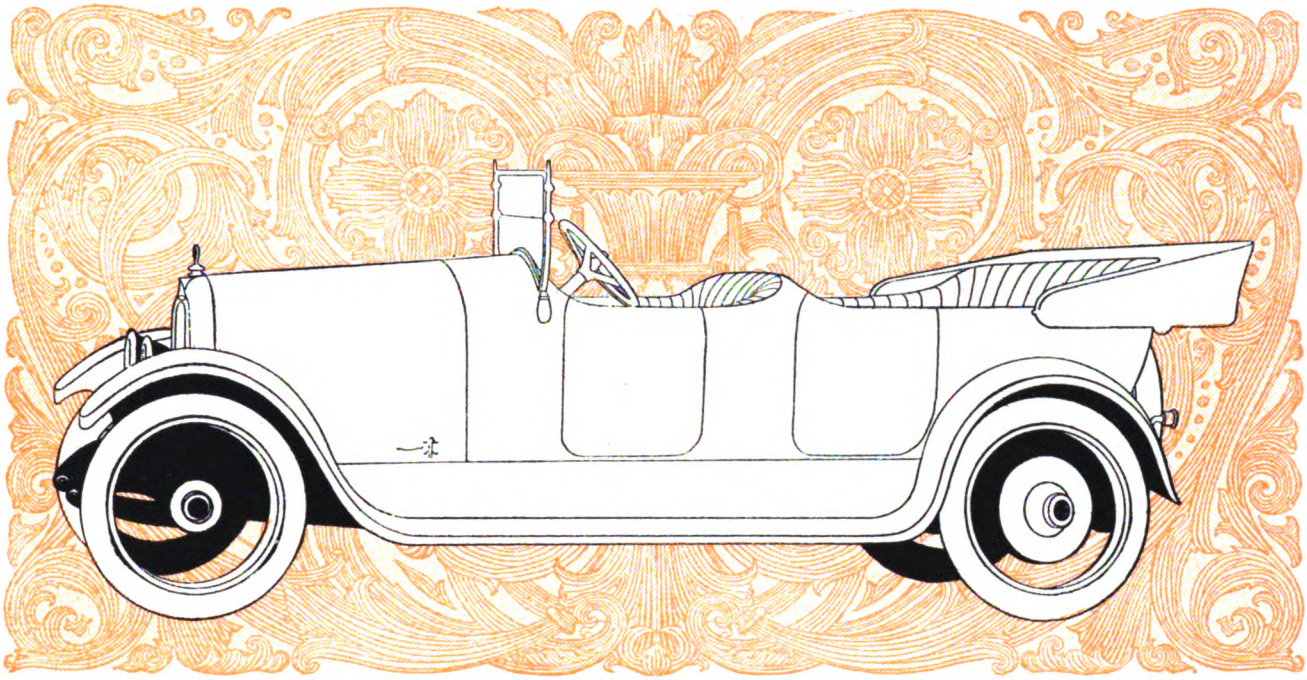
Repairmen have no trouble in getting NON-GRAN cored bars, for they are for sale by every good jobber in the land.

American Bronze Company
Berwyn · · · Pennsylvania

HIGH SPEED
NON-GRAN
BEARING BRONZE



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SMALL TOWN DEALERS ARE MAKING RECORD SALES OF MARMON 34's

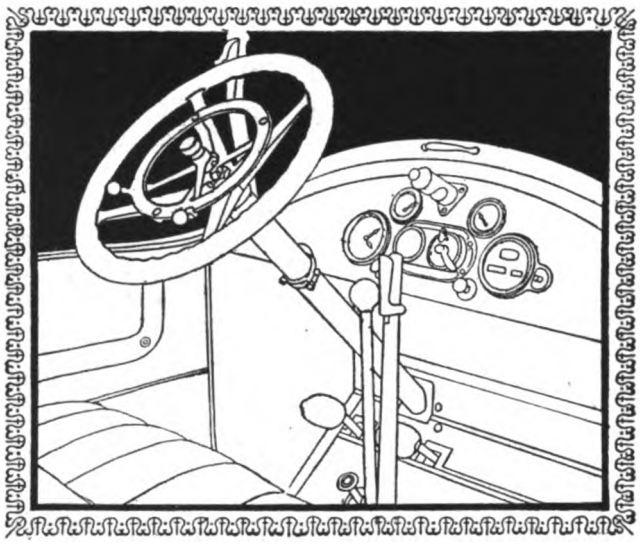
IN practically every small town or rural district, there are people who demand a car of marked superiority.

They have the means to gratify this desire, too. In the Urbana, Illinois, territory, the Marmon-Buick Sales Company sold 19 Marmon 34's in ten months of last year. And many other such record sales best indicate the manner in which the Marmon 34 measures up to the ideals of discriminating buyers.

Now that the spring selling season will soon be in full swing, just think of the numerous persons in your territory who would likely be interested in the Marmon 34.

One "reason why" of Marmon 34 record sales is given on the next page.

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ALL MOTORISTS ARE IMPRESSED WITH THE EASE OF CONTROL OF THE

MARMON 34

WHETHER it is the first time you have shifted gears or after hours of steady driving, you will find that the Marmon 34 handles with remarkable ease.

"It is the easiest handling car of American manufacture that I have ever driven," said an European motor car engineer. And this was after he had driven his *first day's journey* in the Marmon 34.

Control levers are unusually convenient. You do not even have to shift your position to change gears, use the emergency brake, or reach light and ignition switches. Every control is at your finger tips.

By scientific selection of materials and proper distribution of weight, Marmon engineers have obtained a degree of balance and consequent ease in riding and handling, which is unequalled by other cars.

The Marmon 34 is long, with low center of gravity, and even though it weighs 1100 pounds less than cars of equal size and power, it holds to the road at all speeds. There is no side-sway.

It is such features of the Marmon 34 that appeal so strongly to people right in *your* territory.

NORDYKE & MARMON COMPANY

ESTABLISHED 1851 INDIANAPOLIS, INDIANA

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Free from Buckling

The Greatest of Battery Troubles Eliminated

40% Longer Battery Life

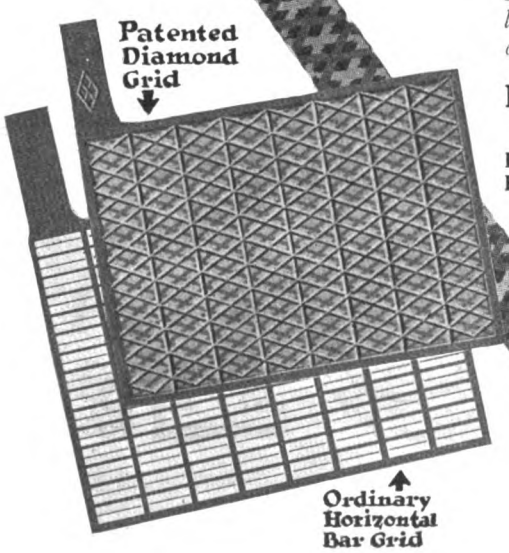
75% of all battery trouble is due to buckling of the battery plates under the internal strains which all batteries develop. There is only one form of construction that is proof against this trouble, and that is the one used exclusively in the

DIAMOND GRID

PHILADELPHIA STORAGE BATTERY

The Diamond Grid framework, which is a patented feature of the plates in this battery, is braced in every direction against every possible strain. On the other hand, the ordinary horizontal bar grid used in other batteries is unsupported in most directions.

Although Diamond Grid Batteries give 40% longer life, they cost no more than ordinary makes.





Philadelphia Storage Battery Co.

Dept. A—Ontario and C Sts.
Philadelphia Penna.

Dealers:—90% of all the electric pleasure vehicles that are built today are operated by Diamond Grid Storage Batteries. The same superior qualities which have given the Diamond Grid Battery so remarkable a dominance in this most exacting of battery services, also make it the best of *starting* batteries. Although for years we have been making Diamond Grid *Starting* Batteries, not until now have we had the facilities to manufacture them on the same big scale on which we make other types. Now our new factory puts us in position to make a drive for starting battery business. We want you to cash in with us on the growth that is ahead. Write us for particulars.

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A Sensational Success

Think of it—more than forty different makes of truck attachments were striving for dominance when the TRUCKMOBILE swung into the arena a few short months ago. Today the TRUCKMOBILE stands as a nation-wide success, enjoying a prestige both among dealers and users that puts it in a class by itself.

This shows how quickly the trade and the market recognized the *standardization* of the truck attachment. *"Real truck engineering!"*—that was the instant verdict on the TRUCKMOBILE. It was seen at a glance that the TRUCKMOBILE took the truck attachment out of the makeshift class and gave it the perfection of which that wonderful idea was worthy.

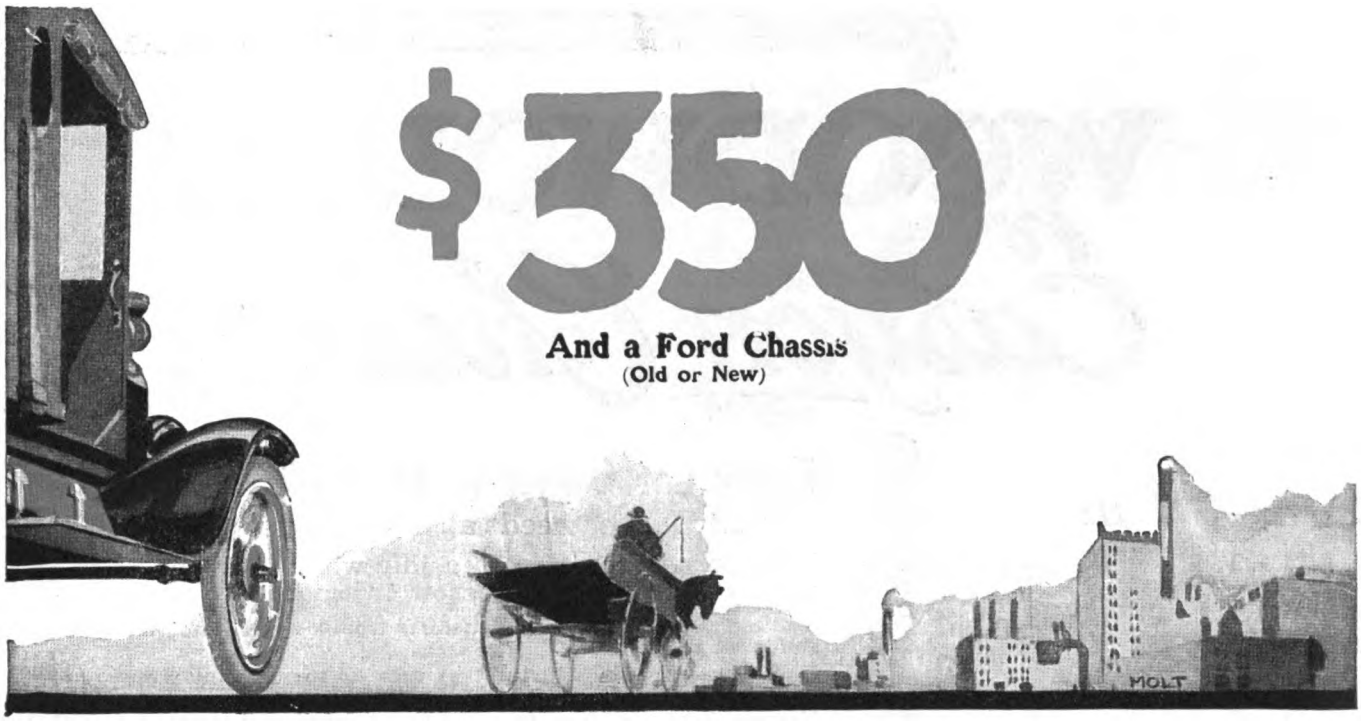
"Biggest of them all!"

1. The TRUCKMOBILE has a longer wheel base—133 inches.
2. The TRUCKMOBILE rides easier under light as well as heavy loads, due to spring construction and long wheel base.
3. Less side sway to frame and body on TRUCKMOBILE—due to method of spring attachment.
4. Wider frame—41½ inches.
5. More massive construction.
6. Fewer parts.
7. Bell sprocket that can be attached in few moments—*keys onto jackshaft.*
8. Requires less time of dealer for making attachment to Ford chassis.
9. Load strain on axle properly distributed because side springs are nearer wheel center than on others.
10. Destroys none of the used or unused parts of Ford car.

TRUCK



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From Coast to Coast!

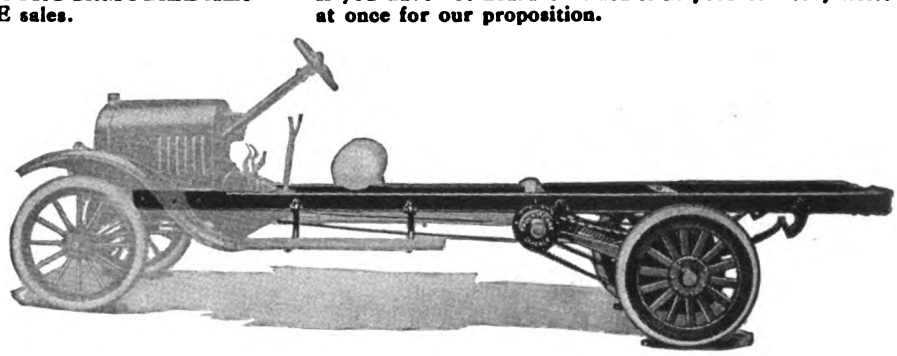
We are going to push the TRUCKMOBILE success to greater and greater bounds. Our carefully planned advertising and sales work is going to bring TRUCKMOBILE delivery and hauling into every community. Every TRUCKMOBILE dealer will play a profitable part in the spreading of TRUCKMOBILE fame and the increasing of TRUCKMOBILE sales.

The biggest dealers in the country are taking on the TRUCKMOBILE. We allow only one dealer in a territory to handle the TRUCKMOBILE, and you may rest assured that everybody in that territory has heard about him. If you have not heard of a dealer in your territory write at once for our proposition.

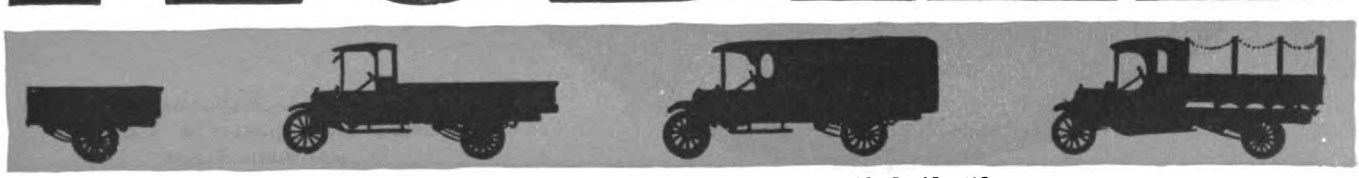
The Commercial Truckmobile Co.

E. F. KIRCHBERGER, President

Dept. E-3
1606 Michigan Avenue
CHICAGO, ILL.



MOBILE



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WOODWORTH
Easyon Chains

On or Off in a moment

Grip like a mudhook

Ride like a bare tire

Every Car Owner in the United States
—either has or needs a set of Easyon chains.

You can put them on in a jiffy without having to wallow around in mud, snow or sand.

You can put them on when you are *in* trouble—you do not have to foresee the trouble.

You can carry them *always*—they take up scarcely any room, and are light and handy.

You can buy them at a low price—and you only have to buy them once. They will not scratch your wheels or bruise your tires, being specially guarded against doing so. They are strong, well made, snug fitting.

DEALERS sell these fast.

ONLY THREE SIZES TO BE CARRIED, fitting all cars.

Small investment—good profits—quick returns.

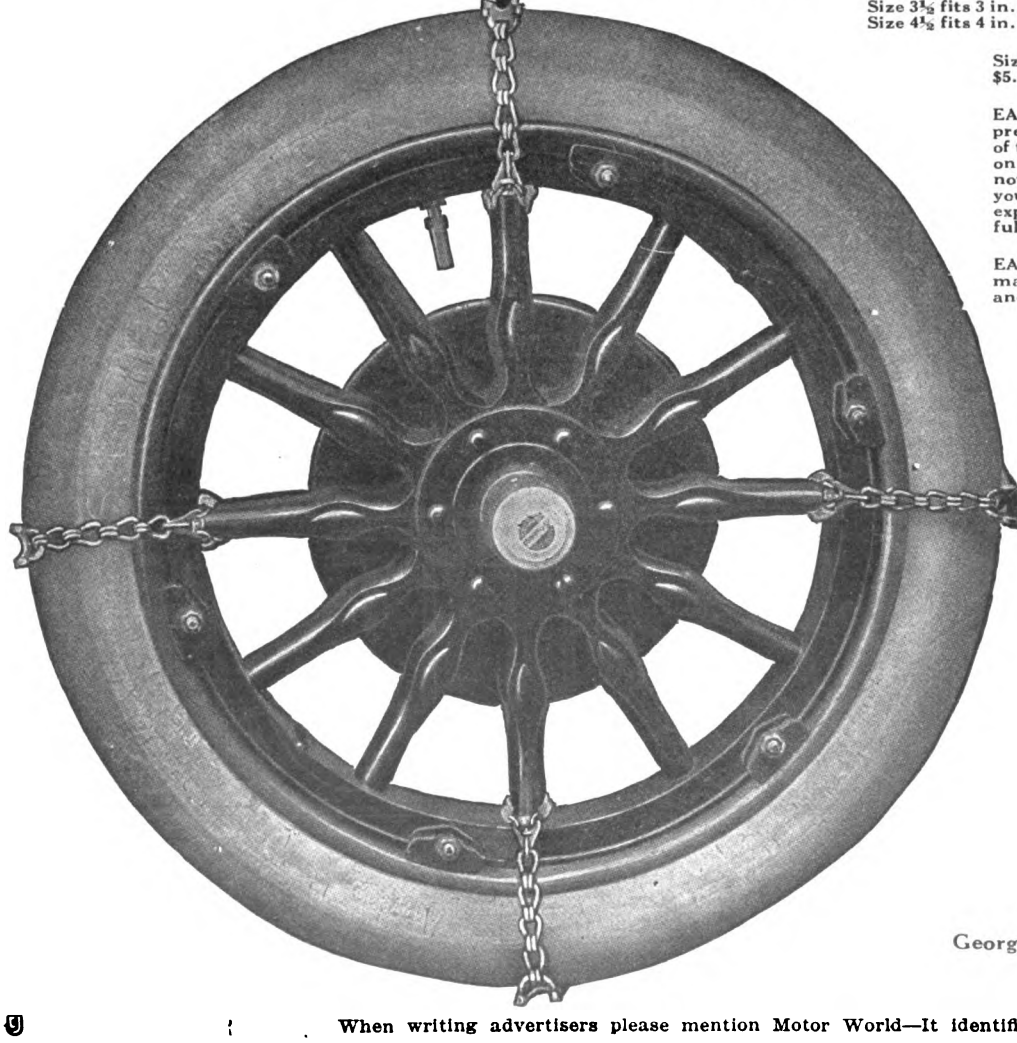
Packed in a set of eight in a bag, four for each rear wheel, enough to give a good grip on any road.

Size 3½ fits 3 in. or 3½ in. tires. $3.00 per set
Size 4½ fits 4 in. or 4½ in. tires. $4.00 per set

Size 5½ fits 5 in. or 5½ in. tires. $5.00 per set.

EASYON CHAINS will be sent prepaid on approval to any part of the United States or Canada on receipt of price. If you are not satisfied after examining you may return them at our expense and we will refund the full amount paid.

EASYON CHAINS are also made for solid tires both single and dual.



Woodworth Manufacturing Corporation
Niagara Falls, N. Y.

Chicago Distributors
George B. Carpenter & Company
436 Wells Street

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Tungar RECTIFIER

SIMPLICITY

Through this improved method of rectifying alternating current, battery charging is now so simple, so certain—that any boy can be given the job.

INSTALLATION

Simply mount on wall or bench and connect to nearest 115 volt A. C. lighting circuit.

Takes small space, is light in weight, and requires no special fixtures.

OPERATION

Simply connect up from one to ten 3-cell batteries, as you desire.

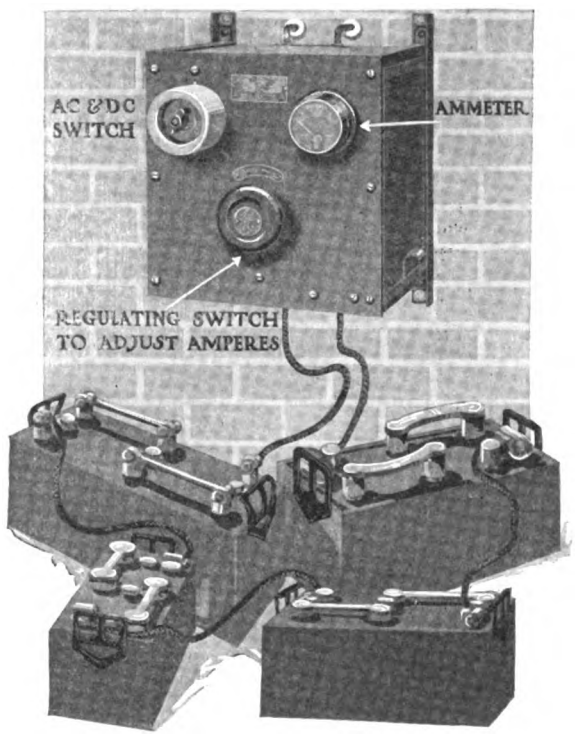
Snap on A. C. and D. C. Switch.

Adjust to required amperage.

That's All

The smaller Tungars for individual use are even simpler.

Don't delay—Ask your jobber or write our nearest Sales Office for particulars.



General Electric Company

General Office: Schenectady, N.Y.

ADDRESS NEAREST CITY

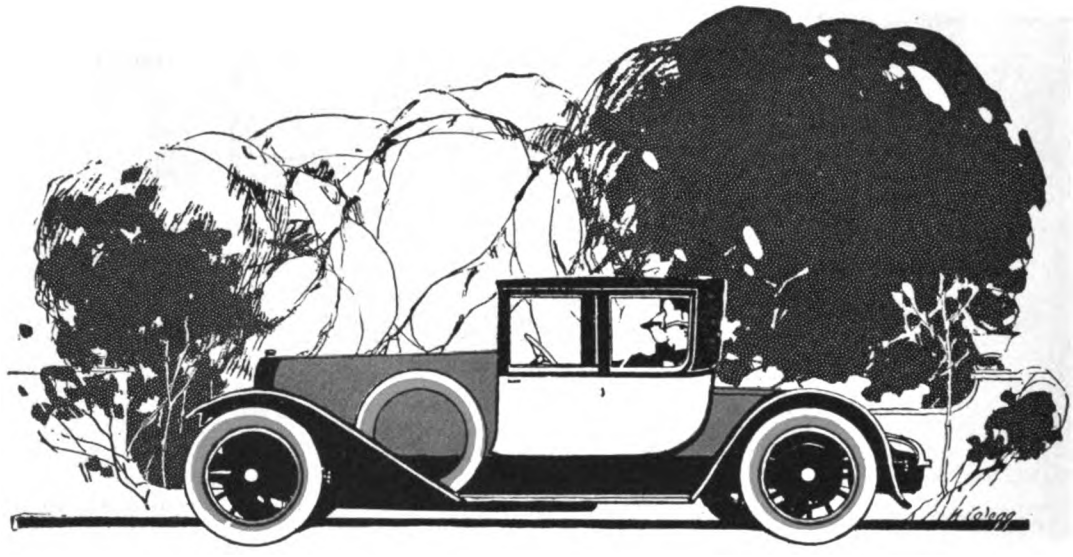
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*Southwest General Electric Company †General Electric Company of Michigan.

For CANADIAN BUSINESS refer to Canadian General Electric Company, Ltd., Toronto, Ont.

GENERAL FOREIGN SALES OFFICES, Schenectady, N. Y.; 30 Church St., New York City; 83 Cannon St., London, E. C., England. 6838

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National Speedway Tires

Establish a New Mileage Record!

FIGURE up the greatest mileage you have so far received from any tire—then buy a Speedway Tire and go out after that record.

Every *Speedway* is expressly made to set up a new mileage record for the man who buys it.

Each *Speedway* is the result of that careful individual workmanship and rigorous inspection which insure the delivery of mileage well in excess of its guarantee.

Thousands of motorists now testify to the lower-cost-per-mile of *Speedway* Tires.

Speedway Tires are made in the Non-Skid only.

This is because the Speedway Non-Skid is as smooth riding as a plain tread.

Yet there was never a more perfect Non-Skid made. There are no knobs in the tread, no bumps nor lumps, nor depressions, to cause *inside fabric strain and wear.*

Let your next tire be a *"Speedway"* and see for yourself that there is really such a thing as "Tire Luxury at a Moderate Price."

You will be surprised at the low cost mileage you will secure.

Speedway Tires are not as yet for sale in all cities. If your dealer cannot supply you, write direct.

Dealers—Jobbers

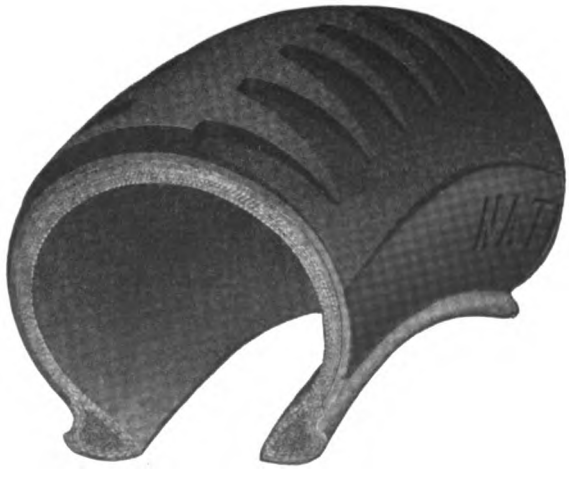
Write for full particulars regarding the new National Sales proposition, discounts, etc.

More than one big tire dealer has made *more* money with the National line.

Get an idea of what we can do for you. The plan is well worth investigation.

NATIONAL RUBBER COMPANY, Pottstown, Penna.

5000 Miles Guaranteed



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At a Glance



CHASE DREDNAUT Motor Topping

is *the* smart-looking, flexible top material, easily handled and cleaned. Withstands all weathers and resists hard wear.

Often outlasts the car itself.

More vehicles to-day are topped with "Chase" materials than any other brand.

"Chase Drednaut" is the logical result of over a quarter century's experience in making top materials.

Don't *experiment* with other topping when you can get "Chase Drednaut."

SEND FOR SAMPLES

·L·C·CHASE & CO·

BOSTON

NEW YORK DETROIT CHICAGO

Seventy years leadership in manufacturing

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AMAZON TIRES

Overwhelming Superiority

in both the tire and the proposition makes the Amazon Agency the most desirable connection of the season.

Some exclusive territory still open. Write or wire at once for full information, prices, etc., stating territory you can cover.



THE AMAZON RUBBER CO. AKRON

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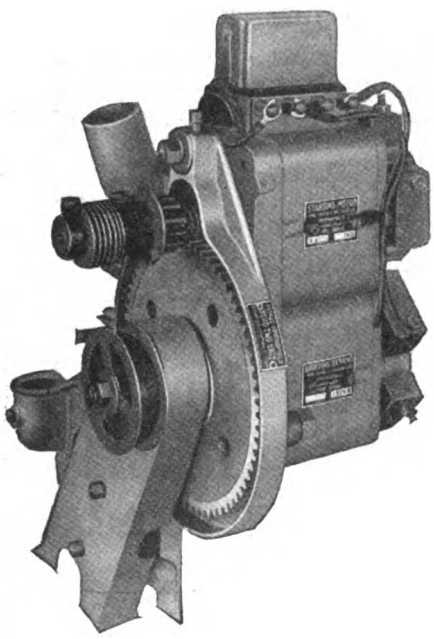
Ford Owners!! Distributors!! Dealers!!

Settle the Question Now!!

Ask any of these Leading Distributors the Reason for the Big Success of the

HEINZE-SPRINGFIELD

FORD STARTER



Atlanta, Ga.	Elyea-Austell Co.
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Cincinnati, Ohio	Heisey-Robbins Co.
Cleveland, Ohio	R. C. Hull Supply Co.
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Syracuse, N. Y.	United States Rubber Co.
Toledo, Ohio	Roberts-Toledo Auto Co.
Waco, Texas	Spencer-Carroll Co.

List Price, $85.00 f.o.b. Springfield, Ohio. Absolutely no extras to buy.
System includes Ammeter Dash Light, Tail Light and Lock.
(These alone would cost $10.25 if purchased separately.)

MR. DEALER: Your territory may still be open. It will pay you to inquire.

THE JOHN O. HEINZE COMPANY

Springfield, Ohio

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CHARACTER

THE individual experiences of over 30,000 auto supply dealers, garagemen and repairmen, are the most convincing testimony of the character of the Service Motor Supply Co. of Chicago.

¶ These 30,000 dealers have come to know that our pledge of SERVICE is kept to the letter. They know that we buy and sell for cash and are thus enabled to give them the benefit of a decided saving on every item of merchandise they buy from us. They know our six hour service in the filling of orders is PERFORMANCE and not merely a PROMISE. They know that our traffic department insures promptness in shipping your order and economy in freight and express charges.

¶ They know that we sell only to dealers—that we do not sell to consumers at any price, either in our own display rooms in Chicago or by mail. To protect our dealers, we maintain a T. D. (Turn Down) Department, employing many people and maintained at a tremendous expense. No consumer orders can get by our T. D. (Turn Down) Department. It serves as a positive protection to our dealers, for it prevents consumers from getting wholesale prices.

¶ We can afford to sell goods at lower prices, because our selling expense is less. We have no expensive traveling salesmen—we sell our goods entirely through the medium of our monthly catalogue—"SNAPS"—which is now known among auto supply dealers and garagemen, as "The National Bargain Directory of Auto Supplies." All goods listed in "SNAPS" are guaranteed to be absolutely as represented. There is no quibbling—no attempt at evasive phrases—every article bought from us is exactly as represented. We back all our transactions with a *guarantee* that you, the customer, must be satisfied or your money will be promptly refunded.

¶ On these foundation stones, rests our character.

Dealer's Note: If you have not been receiving a copy of "SNAPS"—our monthly catalogue, send for it! It will be mailed *free* to any legitimate dealer, repairman or garageman who writes for it on his letterhead.

SERVICE MOTOR SUPPLY COMPANY

1523-25-27-29-31 Michigan Avenue

SERVICE MOTOR SUPPLY Co. 1523-25-27-29-31 Michigan Blvd. CHICAGO, U.S.A.

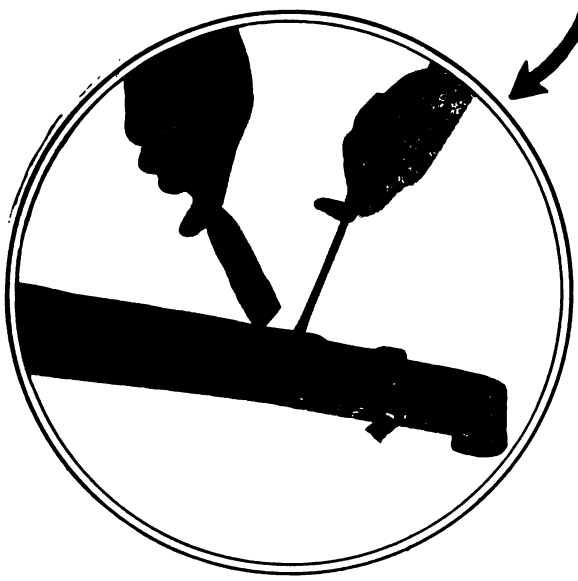
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5 Minutes This Way



Five minutes two or three times a year is all the time required to keep STANLEY Springs in perfect condition. An oil can is the only tool needed. No cold chisel, no hammer, no dirty, messy graphite, no demounting the springs is necessary. First cost only cost. No upkeep.

Against Two Hours This Way



It is impossible to lubricate a spring properly by putting graphite or hard grease between the leaves. Not 5% of the bearing surface is reached in this old-fashioned way. Graphite or grease does not flow to every part of the spring as oil does.

22 Leading Distributors O. K.

Stanley Springs SELF-OILING

Ride Easier Last Longer

Guaranteed Rust-Proof, Squeak-Proof and Break-Proof

Spring Replacements Offer You Big Profits

Will you, as a dealer, accept the judgment of fourteen of the largest Distributors of the United States who have signed up and are now handling the STANLEY SPRING? These Distributors are shrewd, hard headed business men—before they decided they investigated not only the STANLEY SPRING itself—but the market and profit possibilities.

OUR DISTRIBUTORS

NEW YORK
Triple Action Spring Co.
Chas. F. Lyngaas (Export)
BOSTON
American Motor Equipment Co.
ROCHESTER
Rochester Rubber Co.
SYRACUSE
Syracuse Rubber Co.
BUFFALO
Iroquois Rubber Co.
PITTSBURGH
Pittsburgh Auto Spring Co.
TOLEDO
Union Supply Co.
MINNEAPOLIS
Reinhard Bros. Co., Inc.
DALLAS
Ferris-Dunlap Auto Supply Co.
CHICAGO
Auto Supply Co. The Beckley-Ralston Co.
Motor Car Supply Co.
Chicago Rubber Co.
MILWAUKEE
United States Rubber Co.
ST. LOUIS
Beck & Corbitt Iron Co.
SIOUX CITY
Wm. Warnock Co.
DES MOINES
United States Rubber Co.
OMAHA
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MEMPHIS
Ozburn Auto Supply Co.
ATLANTA
Ozburn Auto Supply Co.
SAN FRANCISCO
The Beckley-Ralston Co.

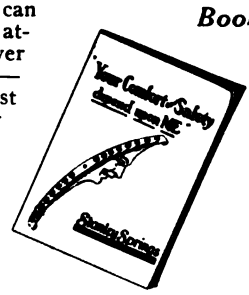
Thorough Lubrication

The STANLEY SPRING is the greatest forward step in motor car refinement—the entire surface of every leaf is lubricated—and lubrication prevents rust, prevents squeaks, prevents breakage—insures long life, resiliency and comfort and easy riding.

In the same way that a wick draws oil from a lamp, the leaves of a STANLEY SPRING draw oil from the saturated oil soaked pads at the leaf tips all the way to the center—where 80% of all springs rust and break.

Car Owners, Dealers, Distributors, Manufacturers—send at once—get our Booklet, "Your comfort and Safety Depend Upon Me," also Engineers' Report—and get this, too, STANLEY SPRINGS can be quickly attached to over 600 models—and they cost practically no more than the ordinary spring.

Send for this Book

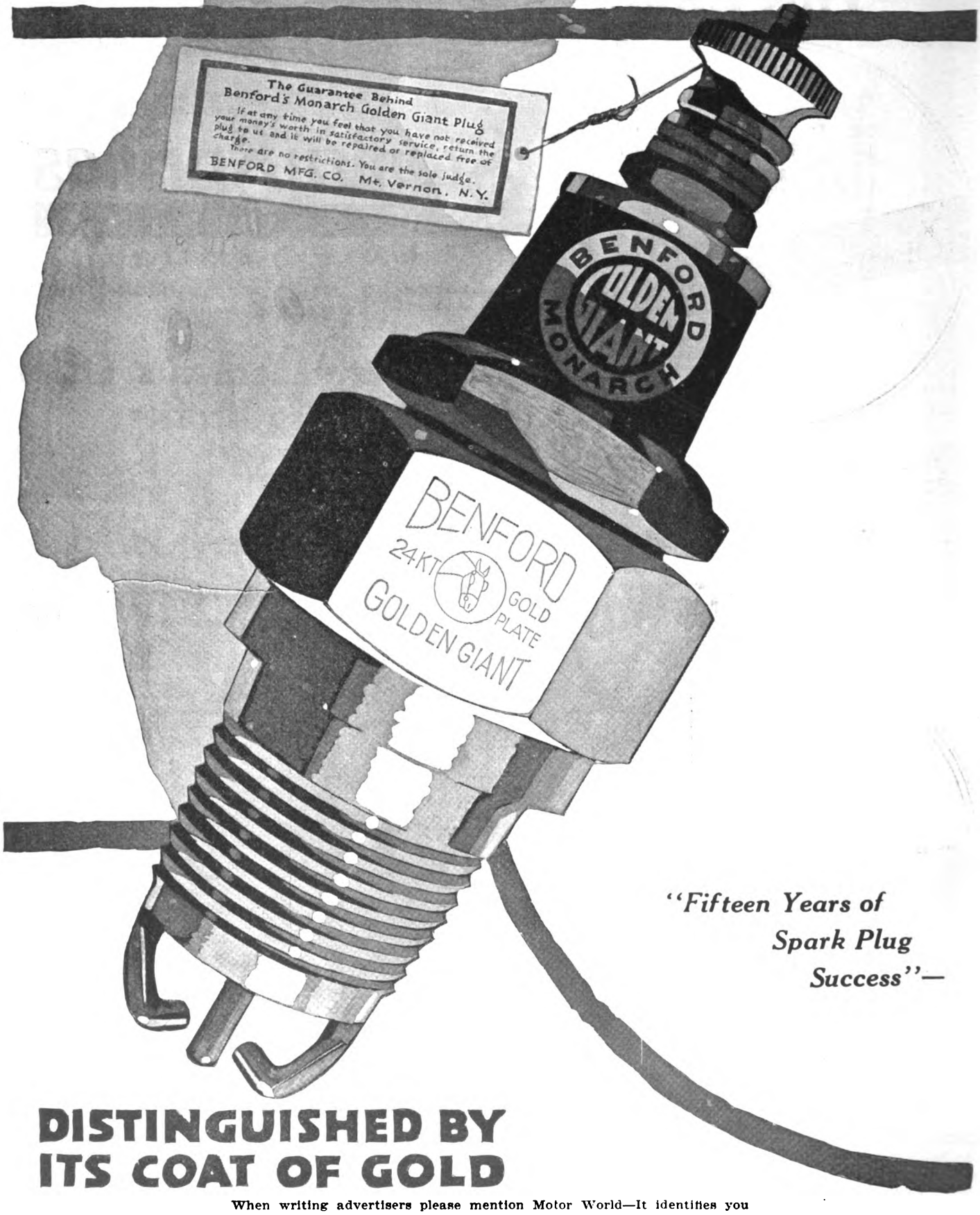


Stanley Spring Co.

911 Michigan Blvd., Chicago, Ill.

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BENFORD'S



"Fifteen Years of Spark Plug Success"—

DISTINGUISHED BY ITS COAT OF GOLD

When writing advertisers please mention Motor World—It identifies you

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GOLDEN GIANT

Why I Spend $150,000

IN THIS YEAR'S ADVERTISING AND SELLING CAMPAIGN

FOR 15 years I have watched every development made in the manufacture of spark plugs.

Every improvement suitable to the quality of plug I am making has been embodied in its construction.

Through all these years I have given the spark plugs I make every test that could prove their quality.

No motor car owner could possibly give my product a test as thorough and severe as I have given it for 15 years.

I know the Golden Giant Spark Plug—what it is and what it will do.

I have spent years of work and study perfecting it, and today I know this—I can and do put every Golden Giant to harder, more difficult tests than any motorist would think of, and it has stood these tests every time and all the time.

The Golden Giant Plugs wear their coat of 24-karat gold as a badge of quality only because I know they have earned it.

I put on every Golden Giant Plug the most complete guarantee of any product ever written.

For many years I personally sold these plugs, and I know the type of sales policy which you, as a dealer, want. If you and I, Mr. Dealer, are not doing business it is because you don't know my product and you don't know my business methods.

Edw. M. Benford

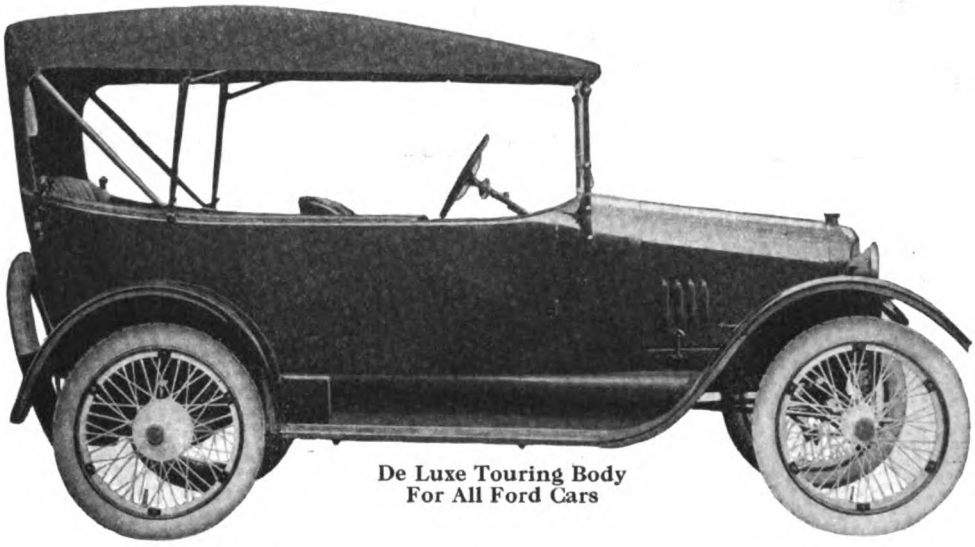
Let's get acquainted. It will be a good thing for both of us.

THE ARISTOCRAT OF SPARK PLUGS

$1.00 Each

BENFORD MFG. CO.
MT. VERNON NEW YORK

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De Luxe Touring Body
For All Ford Cars

DE LUXE BODIES FOR FORDS

"Seen Where the Best Cars Go"

Ford Car Aristocracy Is De Luxe Equipped

Aristocracy in Ford cars—individuality, personality—demand a different body.

DE LUXE EQUIPMENT—the work of well-known designers of quality cars—transforms the Ford into a car of modish lines and luxurious conveniences.

Adjustable and removable front seats, deep upholstery, one-man or Victoria top, wire wheels—all details of high-priced cars—make the most mechanically perfect Ford, the most desirable and serviceable car below $1000.

Write today for Details and Fully Illustrated Catalog.

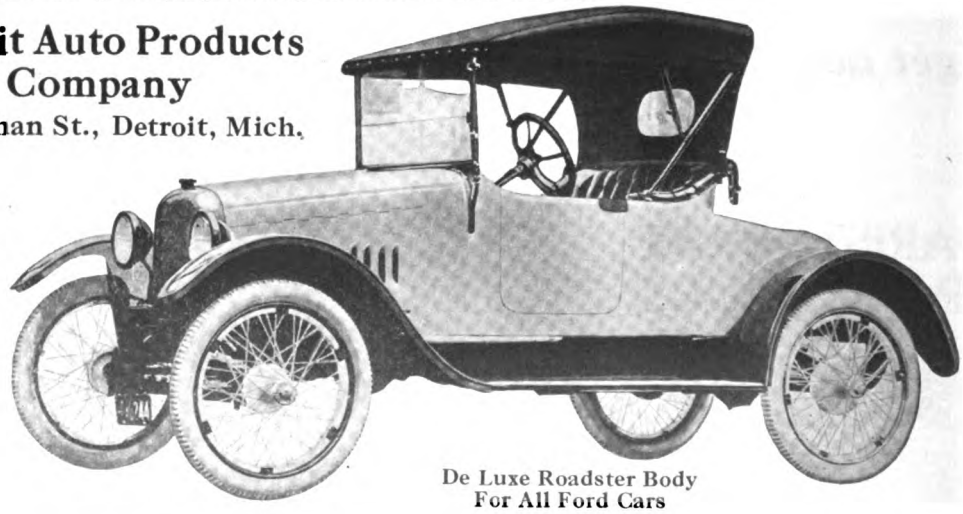
Some desirable territory still open for leading Ford Dealers. Write or Wire.

Specifications

Pressed Steel Body. Divided Front Seats—adjustable, reversible, removable. **Radiator,** "V" Type. **One-Man Top**—Black mohair. **Crown Fenders, Streamline Hood. Windshield**—Clear Vision, Ventilating. **Foot Accelerator. Stewart Vacuum Gasoline System**—Touring Body Only. **Four Wire Wheels,** demountable rims, one extra rim, $37.50 extra. Special colors, $10 extra. **Price complete** (touring), $260; (roadster), $197.50 f.o.b. Detroit.

Detroit Auto Products Company

38 Sherman St., Detroit, Mich.



De Luxe Roadster Body
For All Ford Cars

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TO LIVE DEALERS

Some good territory is still open for the Glide "Light Six" (built by the sixth oldest motor car manufacturer in the United States).

Sixteen years of successful experience in building high grade automobiles should be a dependable guarantee of our reliability and permanence.

The Glide Six is easy to sell and gives perfect satisfaction. Our 1916 sales exceeded our factory capacity. For 1917 our output will be increased over 50 per cent, and we shall back our dealers with liberal advertising.

Get the Agency for This Well Known Car

that has given uniformly satisfactory service and has an established reputation for dependability and efficiency. At the price—$1250—the Glide Six offers greater value than any other "Six" which has equal specifications and as complete equipment. Don't delay—write now, as territory is being closed rapidly.

THE BARTHOLOMEW CO. 310 Glide Street, Peoria, Ill.

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Make Money Selling This Popular Accessory

Over 100,000 of these wonderful vulcanizers sold last year with scarcely any advertising. The demand is tremendous. Every motorist wants the

SHALER 5-MINUTE VULCANIZER

Manufactured under Low & Miles Patent

It gives you a liberal profit on the first sale and brings customers back into your store for supplies for use on the road.

We are just starting a large advertising campaign that will send customers to your store. Motor car owners know the Shaler and call for it by name. Get your share of the profits from this advertising.

Every Shaler user praises this handy outfit because it works so easily and safely and because it saves tire money.

No car is equipped with a vulcanizer, and your customers are going to buy the Shaler from some dealer.

That dealer can be you!

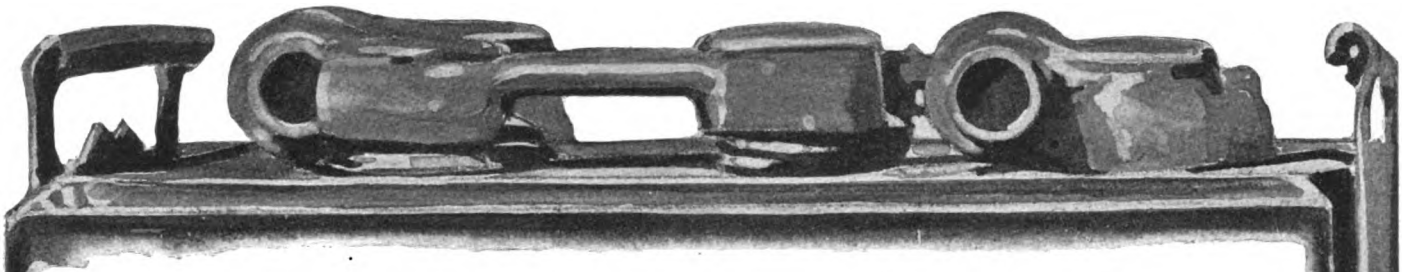
Write today for our new Catalog, dealer's discounts and terms, or

Ask Your Jobber's Salesman About It

C. A. SHALER CO., 410 Fourth Street, WAUPUN, WIS., U. S. A.

When writing advertisers please mention Motor World—It identifies you

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—and the largest

Service Organization

of its kind in the world is behind the Gould Battery

These 31 Gould Distributors help to make it possible. Individually they are strong, well-established, high-rated concerns. Collectively they cover the United States and Canada **intensively,** territory by territory, rendering an invaluable service to Gould dealers while developing and extending Gould Service to car-owners.

Akron, Ohio
A. M. Allen Elec. Co.

Milwaukee, Wis.
Julius Andrae & Sons Co.

Denver, Col.
L. R. Bach & Co.

Kansas City, Mo.
B-R Electric Company

Salt Lake City, Utah
Capital Electric Co.

Pittsburg, Pa.
Doubleday-Hill Elect. Co.

Washington, D. C.
Doubleday-Hill Elect. Co.

Portland, Ore.
Fobes Supply Co.

Seattle, Wash.
Fobes Supply Co.

Sioux City, Ia.
The McGraw Co.

Omaha, Neb.
The McGraw Co.

Philadelphia, Pa.
Jones-Beach Co.

New York City
The Motor Car Equip. Co.

Toledo, Ohio
W. G. Nagel Elect. Co.

St. Paul, Minn.
Northwestern Elect. Equip. Co.

Cincinnati, Ohio
Queen City Motor Del. Co.

Buffalo, N. Y.
Robertson-Cataract Elect. Co.

Waco, Texas
Spencer-Carroll Co.

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Varney Elect. Supply Co.

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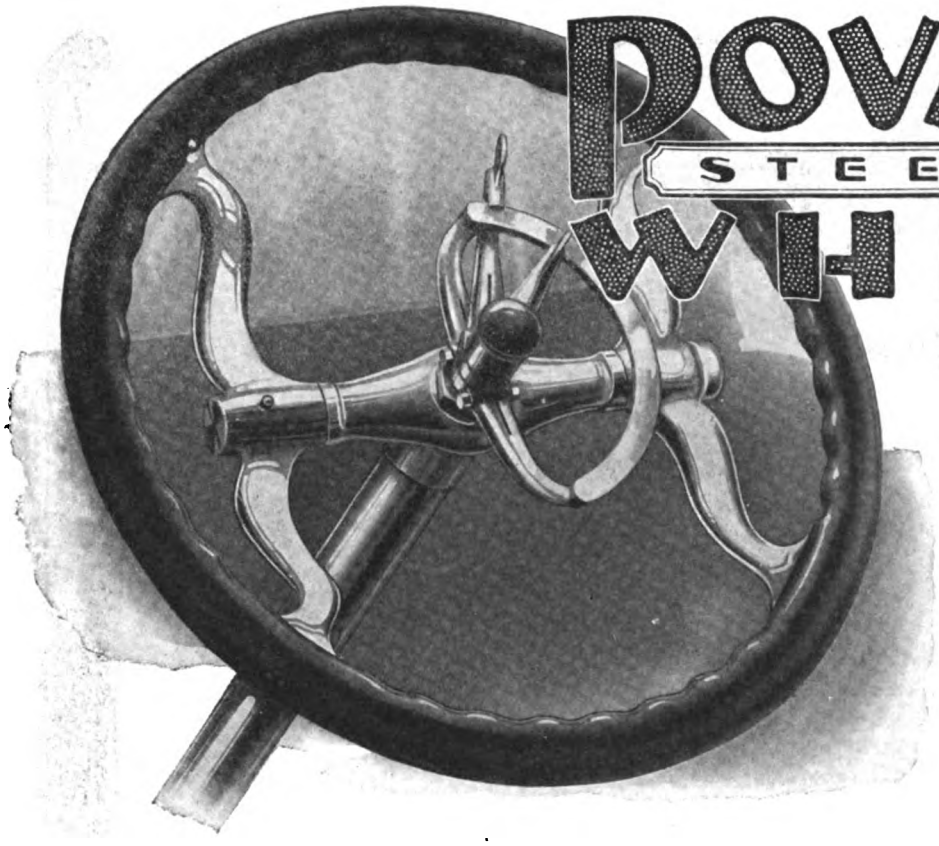
Halifax, N. S.
John Starr Son & Co.

Write to nearest distributor for details of Gould Agency Plan

Gould Storage Battery Co., 30 East Forty-second St., New York

Gould
STORAGE BATTERY

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POVASCO STEERING WHEELS

Merchandising and Imagination

We want the right kind of merchandisers to distribute these products—men with drive and hustle, the ability to handle a volume of business and the imagination **to see and enter the big POVASCO field.**

Are you one? Then go on record with us by asking us to show you our proposition.

The most successful distributors of automobile merchandise are the men who can see the possibilities of a new or better accessory. They use their imagination.

Use yours: You know that a secure position is waiting for a permanently durable steering wheel—one that is indestructible and proof against the finish-destroying effects of rain, sun and perspiration.

Add to that: The most ingenious, practical and fuss-proof over and under tilting feature of the POVASCO.

And further: The hand-warming feature of the POVASCO banishes the dread of cool weather driving—the hands are heated and the body keeps comfortable.

Or again: The POVASCO wheel dimming attachment that may be had instead of the warm-hand feature, solving simply your headlight glare troubles.

And all in one line of wheels! Made for, and easily attached to, every make and model of car.

Can your imagination conceive an accessory or a part that commands a greater field of satisfied sales

POVASCO is the leader, supported by other moulded products, all of them 12-month sellers—and the heated wheel a quick mover in cool weather, when everything else is sluggish.

Write for our newest catalog

POUVAILSMITH CORPORATION

Poughkeepsie New York



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DEALERS: THIS SEARCHLIGHT DELIVERS • Satisfaction to The User • Business For You

VESTA WINDSHIELD SEARCHLIGHT

THE VESTA Windshield Searchlight is a powerful, versatile, sturdy lamp with a number of distinct advantages that make for both convenience and stability. We believe that it is by far the biggest lamp value on the market.

This Vesta Searchlight throws a clear beam 800 feet ahead, or in any direction. It is light, strong and easily manipulated. Can't rattle or jolt loose. Turn it in any position and *it stays put.*

The same high quality that has made Vesta Batteries and other Vesta Lighting Accessories leaders throughout the world, is embodied in the Vesta Windshield Searchlight. It is a *real* light—a glance over the list of features will convince you.

You can always depend on the Vesta to deliver *absolute satisfaction to the user.* This means *business for you.*

Find out about the Vesta Windshield Searchlight. The field is big—the profits sure and liberal. Let us send you illustrations and complete information about this lamp leader. Use the coupon.

VESTA ACCUMULATOR COMPANY, 2103 Indiana Avenue, Chicago

VESTA ACCUMULATOR CO.
2103 Indiana Avenue, Chicago, Ill.

Send me prices and complete information on the Vesta Windshield Searchlight.

Name.....

Address .....

Note These Superiorities

Cutler-Hammer Switch in Handle—Right at your finger tips. Dependable and lasting.

Machined Taper Joints—Makes easy manipulation and ability to stay put. Center piece of brass gives two perfect bearings—brass to iron. Regulation of lock nuts produces desired tension.

Malleable Bracket—Made of best malleable iron. Will bend before it will break.

Perfect Attachment—We make dozens of styles of brackets to fit different cars. In ordering mention name and model of car.

Conductor Cord—Five feet of good double conductor cord.

Hinged Doors—Hinges on both sides. No rattle—doors cannot drop off as with cheap bayonet arrangement.

Reflectors—True parabolas; heavily silver plated.

Nitrogen Bulbs—All lamps equipped with new Mazda Nitrogen filled bulbs. 50% more light.

Sturdy Doors—Heavy gauge steel, insuring perfect, permanent fit.

Steel Body—Heavy gauge, cold drawn black japanned steel—lasts indefinitely.

German Silver Handle Cap—It will not tarnish.

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ONE INCH



FIRING SURFACE!

Think what that means—TEN TIMES greater sparking surface than that of the conventional spark plug—



Identify the Bergie National Spark Plug by this construction

7 to 10 more sparks, hotter, more intense sparks.

BERGIE National SPARK PLUGS

—7 to 10 more chances of *clean, complete* combustion.

BERGIE NATIONAL Spark Plugs improve the performance of **any** motor formerly equipped with old style plugs, because they throw a **Shower of Sparks.** They increase power—lessen fuel wastage in the nature of unburned gases — ensure quicker acceleration and greater flexibility.

Price, $1 each, for all makes and models of cars.

At most good dealers and supply stores, or if your dealer cannot supply you, sent direct on receipt of price.

Dealers Wanted Everywhere

BERGIE NATIONAL SPARK PLUG CO.
ROCKFORD ILLINOIS

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WHAT THEY ALL SAY

Resta Says

It gives me great pleasure to inform you that the Bosch Magneto which I have successfully used in the 1916 season has given every satisfaction and has enabled me to gain first honors in the A.A.A. Championship. I used the same magneto throughout the season and never in one instance had the slightest trouble or misfire.

Dario Resta

Aitken Says

No small part of my success was due to the wonderful and consistent performance of the Bosch Magneto with which my Peugeot car was equipped for every race in which I competed.

If the various parts of which an automobile is composed gave as little trouble as do Bosch Magnetos, the trials of a racing driver would be few, indeed.

John D. Aitken

Rickenbacher Says

I feel as though you would be very pleased to hear that during the entire season my cars were equipped with Bosch Magnetos, which gave perfect results. In fact, there wasn't a time during the past six months of racing that I can remember the motor missing a single shot which was due to faulty or defective magnetos.

Eddie Rickenbacher

De Palma Says

The continuous use of Bosch for eight years is an expression in itself as to what I think of the dependability of this type of ignition.

I finished fourth in the Championship Races of 1916, but in no instance can I lay the difficulties to my Bosch Magneto.

For efficiency I cannot think of any other magneto that would give me as much satisfaction.

Ralph De Palma

BE SATISFIED Correspondence Invited **SPECIFY BOSCH**

BOSCH MAGNETO CO., 224 West 46th Street, New York

CHICAGO DETROIT SAN FRANCISCO

Service Stations in Every State

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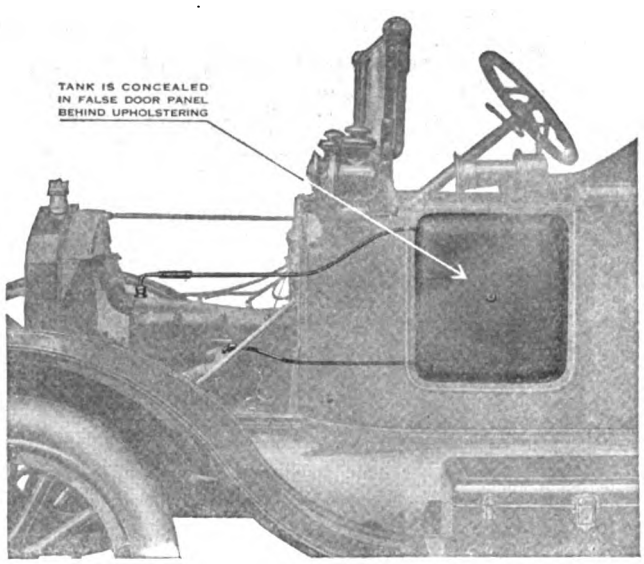
Keep Your Ford Cool

The THERMOMAT Patented

Auxiliary Cooling System

MAKES OVERHEATING IMPOSSIBLE UNDER THE MOST SEVERE OPERATING CONDITIONS

Especially made for Ford pleasure cars, trucks and tractors. Easily and quickly installed by anyone. Made of best materials and will last the lifetime of the car.



It is foolproof and operates automatically—requiring no adjustment or attention. It fits in false door panel—takes up no valuable space—is completely out of sight of anyone.

The system consists of a pressed steel vacuum condenser tank connected to the motor by means of two copper tubes. The vacuum condenser tank being interconnected to engine and radiator, is automatically filled with water through the radiator. The extra supply of water in the tank increases the efficiency of the cooling system. As soon as steam is formed in the water jacket, it is drawn back into tank and condensed. The vacuum tank operates on the well known condenser principle, taking the steam as fast as the engine generates it. This allows the water to circulate naturally as it should, and prevents overheating.

If your dealer cannot supply you--write direct

Send for Booklet

Price $12.50

The Cawle Company

506 City Trust Bldg. **Indianapolis, Indiana**

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$100 Advance April First

Because of the increased sales of our touring and roadster models we are compelled to start into production much earlier than originally contemplated materials purchased at the present higher prices.

Consequently the prices of these two models will be advanced proportionately on April 1st.

On April 1, Cole Eight touring cars and roadsters will cost $1795 instead of $1695—the present price.

Present Prices

Seven Passenger Cole Eight Touring Car . .	$1695
Cole Eight Tuxedo Roadster	$1695
Cole-Springfield Four-Door Toursedan . . .	$2495
Seven Passenger Cole-Springfield Toursedan .	$2295
Four Passenger Cole-Springfield Tourcoupé .	$2295

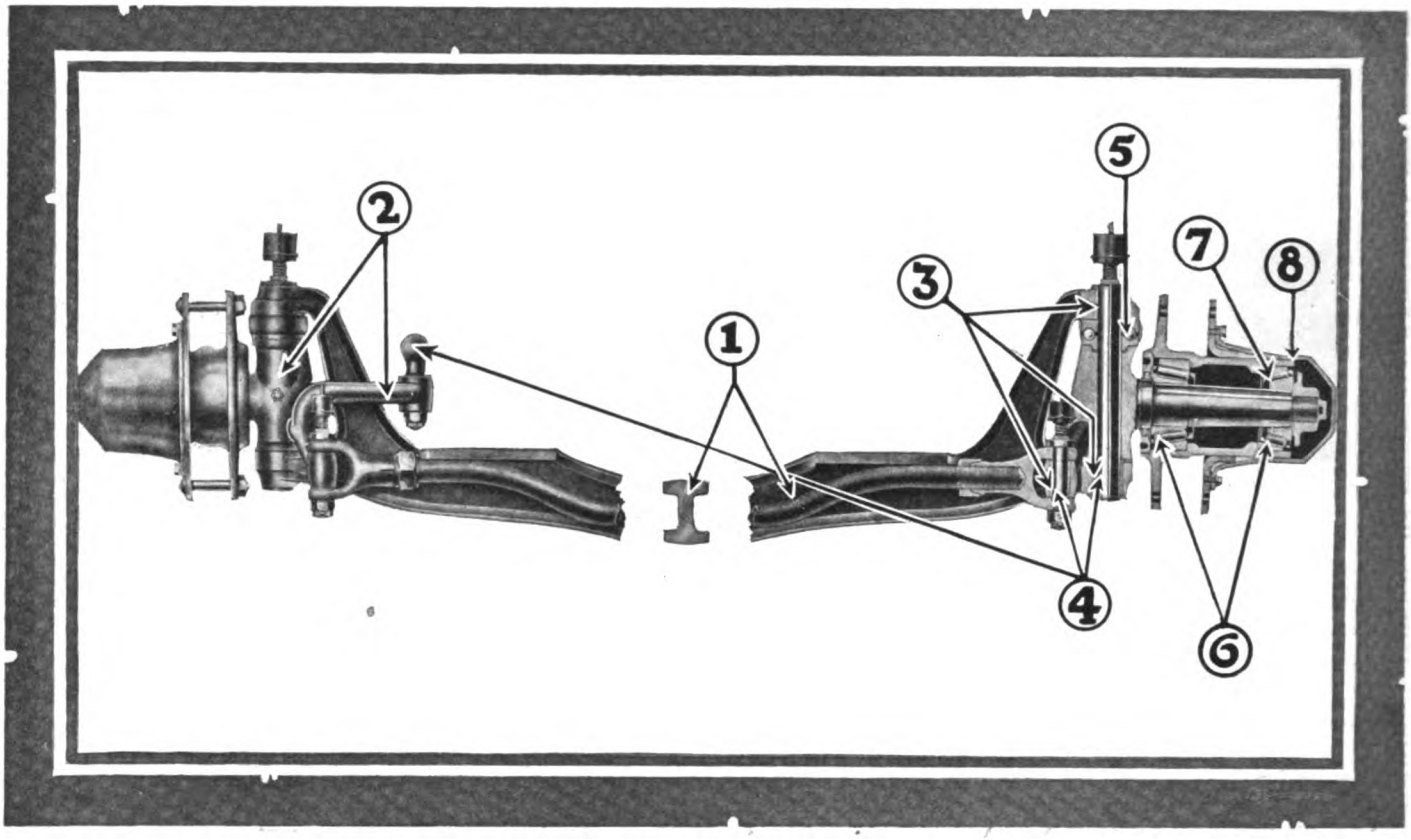
Prices f. o. b. factory

Touring Cars and Roadsters Subject to $100 Advance April 1st

Cole Motor Car Co.

Indianapolis, U. S. A.

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Why SHELDON Front Axles are Better Axles—

1. Heat-treated axle bed—drop forged in one piece—I-beam section—strong, yet light.

2. Steering levers and knuckles drop forged—3½% nickel steel—properly heat-treated.

3. All wearing surfaces protected by steel bushings.

4. Clevis Pins, Ball Pins and Pivot Bolts hardened and ground to size—extra large wearing surfaces.

5. Ball thrust bearings—make steering easy.

6. International series wheel bearings—two row ball-bearings, straight roller or taper roller-bearings, all interchangeable—single row annular ball-bearings can be used by employing spacer.

7. Extra large outer bearing—increases life of bearings and spindles—reduces upkeep cost.

8. Bolted on hub caps—outer bearing protected from injury in case of collision.

Sheldon Axle and Spring Company

Wilkes-Barre, Pennsylvania

When writing advertisers please mention Motor World—It identifies you

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How "Dann Insert" Made Greater Tire Mileage Possible

A tire is built up by vulcanizing a number of layers of fabric together with rubber, which structure constitutes the wall of a tire.

The wall of a tire is capable of only a limited number of deflections or bends, before breaking down, and blowing out. These deflections are the result of running a tire on the road.

When a tire is subjected to continuous excessive deflection, the fabric breaks down sooner than it should; in consequence of which, the tire blows out early in its life.

There are two things in the construction of an automobile which absorb road shock, and they are

Springs and Tires

If the springs are stiff and inefficient, the burden of absorbing the majority of the road impacts falls upon the tires, and that shortens their life.

With poorly working springs, tire life is shortened to such an extent that in some cases the mileage is reduced to a half or a third of what it should be.

Spring efficiency depends on the quick sliding motion of the spring leaves upon each other. The utmost spring efficiency is obtainable by installing a lubricated bronze bearing between all the leaves from end to end.

With such bearings between the spring leaves, the springs are able to respond instantly to the slightest impact, and instead of most of the blows being absorbed by the tires, the greater portion of them are absorbed by the springs, which relieves the tires of excess strain, and results in greater tire life.

DANN INSERT will maintian spring efficiency and *can be installed in any make or model of car.* DANN INSERT will make your car ride better than it ever rode before. We guarantee easy riding—or your money back.

DANN INSERT brings every spring into perfect action, because *you install it between all the leaves in all of the springs from end to end.*

The best proof that DANN INSERT increases tire life, and saves its cost by the increased mileage on two tires alone, is the fact that DANN INSERT dealers themselves give an extra guarantee of 1500 miles on a standard make of new tire properly registered with them, and used on a car equipped with DANN INSERT.

There is no guesswork about the 1500 extra mile guarantee. It is given to you in writing, and we challenge any one to show that DANN INSERT does not save its cost quickly by increased tire mileage. Every one who has DANN INSERT in the springs of his car is entitled to register his new tires without extra cost, and receive the written guarantee of 1500 extra miles.

DANN INSERT never fails to get a result. There is no uncertainty in its action. There is no guesswork about what it does.

Every dealer that is not handling DANN INSERT now, has an opportunity to investigate the possibility of getting the DANN INSERT Agency.

Mail This Coupon Now!

DANN INSERT is standard equipment on the following cars:

Winton—Austin—Disbrow

THE DANN PRODUCTS COMPANY

1090 East 125nd Street, Cleveland, O.

"Demand Dann Insert in the Car You Buy"

The Dann Products Company
1090 E. 152nd St.
Cleveland, Ohio

Please send me complete information relative to the above, as pertains to my requirements.

I am a { Car Owner. Dealer. Manufacturer.

Car.....

Model..... Year.....

Name.....

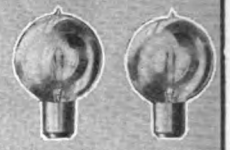
Address.....

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Our Reputation is *Your* Guarantee

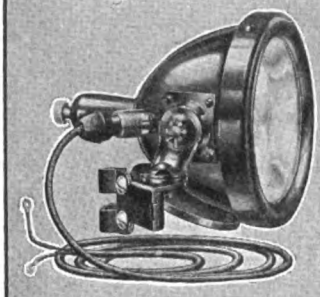
VERSAL PRODUCTS
FOR THE
UNIVERSAL CAR
DETROIT STARTER COMPANY
DETROIT, U.S.A.

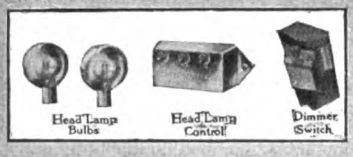

Electric Tail Lamp

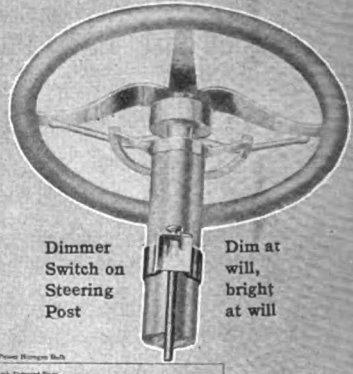

Extra 24 c. p. Nitrogen Bulbs



Head Lamp Control


Spotlight

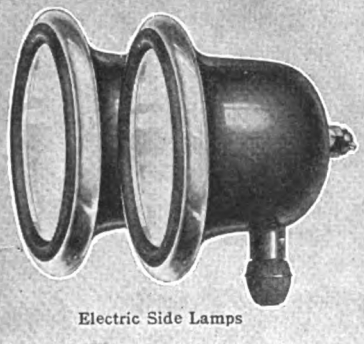


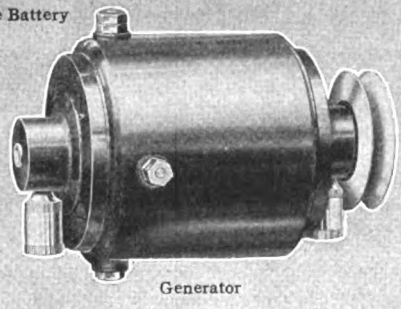

Dimmer Switch on Steering Post

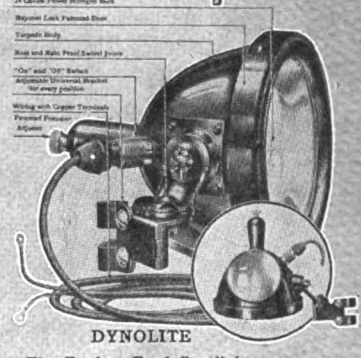
Dim at will, bright at will


Regulator


Storage Battery


Electric Side Lamps


Generator


DYNOLITE
The Perfect Ford Spotlight

Genolite Type C and D ▽ Constolite — Dynolite

Genolite Type "C" $29.85

An improved electric lighting system for lighting all five lamps, heads, sides and tail — gives brilliant light from storage battery in both side and tail lamps (which we furnish) irrespective of whether motor is running or idle. Provides also two nitrogen head-light bulbs lighted through patented regulating device which governs flow of current taken from magneto, giving more constant light at low engine speeds and can be dimmed at will at high speeds. Installed in two hours.

Genolite Type "D" $31.85

Includes the following — a storage battery — a generator with "cut out" which automatically charges the battery — two beautiful side lamps with bulbs — one high grade tail lamp with bulb — one high grade windshield spotlight with bulb — one coil box for automatically regulating spotlight — which also automatically dims headlight. Together with necessary wires, brackets — absolutely complete, ready for installation. No extras needed. Installed in two hours.

Dynolite $6.85

A powerful windshield spotlight designed exclusively for Ford cars. Cannot be excelled for the quality of material throughout, its many exclusive features and the exceptional power and brilliancy of its light. Operates off magneto through patented regulator which automatically delivers current at the proper voltage, keeping light constant in power irrespective of motor speed. Only two terminal connections to make installation.

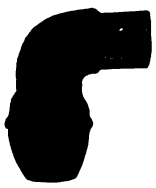
Constolite $4.85

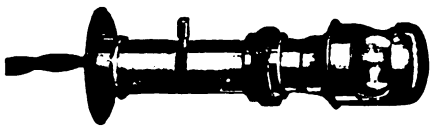
Gives a full driving light at practically all speeds — light in both head lamps at all times. Wired in multiple to prevent burning out — dimmer switch conveniently located on steering post — an exclusive feature found in no other device control. All wires, two extra bulbs, and dimmer switch provided. Installed in few minutes.

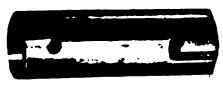
DEALERS! This is the greatest sales producing accessory of the year. Write for particulars. Dept. II

Perfect Electric Lighting *for* Ford Cars

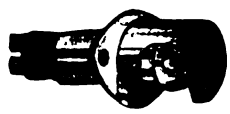
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Elbow Plug

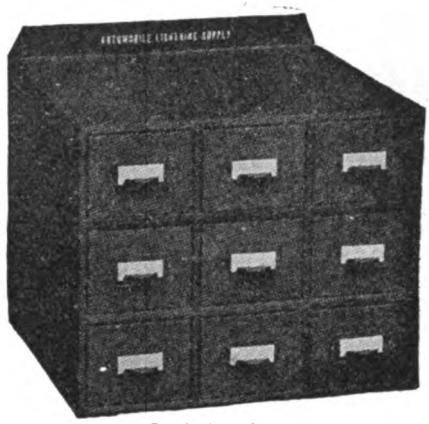

B-111—E with Ext. Cord


102


61

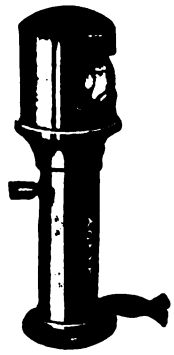

764


B-54


Dealer's Cabinet



Display Board


B-67

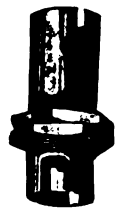

A-24


112


H-8


501—D.C. Only


114


96

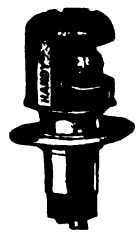

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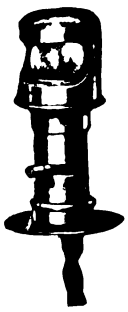

99-A


D-3


19


772


760


755


40


27-A


42


33 and 33-3 Pole


49


784

Dealers—

Carry this Line of Electric Fittings

Use the "Handy" display cabinet for electric fittings. Carry the famous "Handy" line—sockets—plugs—connectors—switches—dash lamps—trouble lamps—bulbs and cigar lighters.

We sell this nine-drawer "Handy" cabinet already stocked with an assortment of one hundred plugs, switches, connectors, etc., in the most wanted style.

Let us prove to you how this cabinet, with a small stock of electric fittings, can attract new customers to your shop and pay you good profits with constant repeat orders.

On the consumer's side of the "Handy" cabinet each article is reproduced by photograph showing the number. On the salesman's side every drawer contains a tag with prices.

It simplifies sales—eliminates errors.

Write immediately

and we will send you our latest folders, illustrating and describing the cabinet and our complete line of electric fittings.

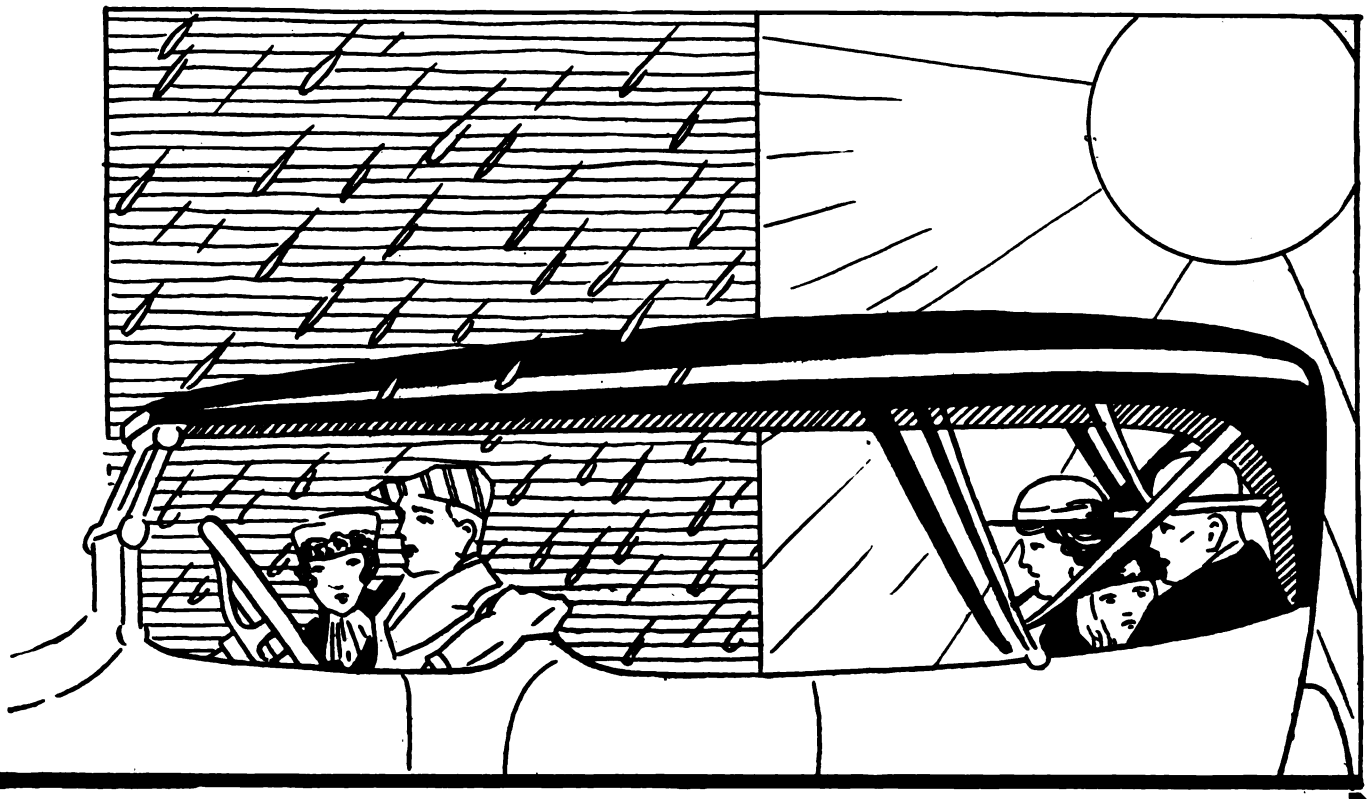
"Handy" Electric Cigar Lighter

"Handy" Electric Cigar Lighters are the fastest selling automobile novelty today.

A finely finished article at a very low price. Standard equipment of Pierce-Arrow, White, Pathfinder and other high-class cars.

A. J. PICARD & CO., Inc., 1721 Broadway, N. Y.

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PROTECTION
IN ALL KINDS OF WEATHER

Your auto top will be protected from heat, dust and rain if you use

PEERLESS TOP DRESSING **Makes Old Tops Look Like New**

Made for black and colored Mohair and leather tops. Peerless top dressing will bring back the original lustre, waterproof, remove the stains and protect the top for a season's hard dusty driving.
A few moments' time with a can of *inexpensive* Peerless Top Dressing will give you *protection* for the entire season.
There is a Peerless Product for every part of the car and every one is the best for its particular work.

AUTOMOBILE PEERLESS SPECIALTIES

Make Old Cars Look Like New

Spend a few hours' time with some of the Peerless specialties. You will be repaid many times over by the better appearance of your car and the protection against wear, rust, stains and depreciation.
Peerless tried and tested specialties are for sale by Jobbers, Dealers, Garages, Hardware Stores, and are used by more than 8000 of the most discriminating auto paint shops.
Be sure to insist on PEERLESS.

DEALERS: The story of Peerless quality will reach millions of readers this year. Stock and Push Peerless Products.

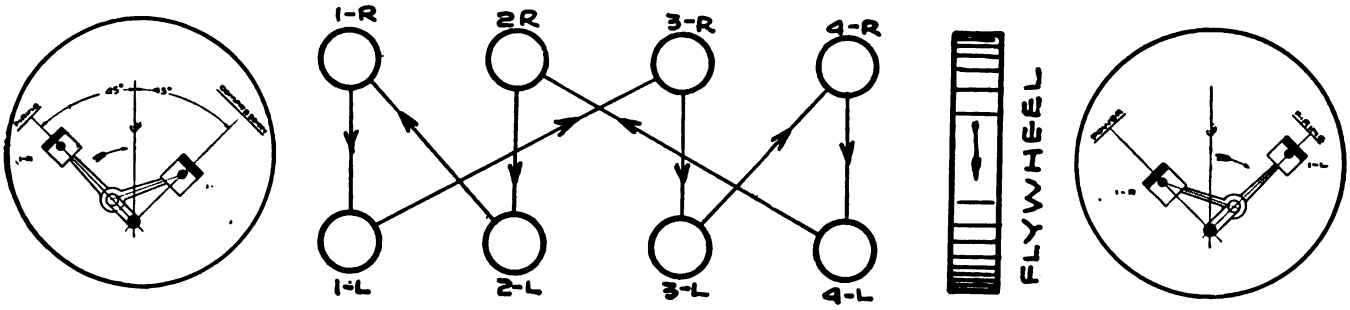
Manufactured and guaranteed by

The COLUMBUS VARNISH COMPANY **Columbus, Ohio**

VARNISH MAKERS OF QUALITY FOR 25 YEARS

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The Firing Order



A Prolonged Impulse on Each Crank-Pin

The firing order of the Ferro V-Type Engine is one of the reasons for its extra power, flexibility and smooth-running performance. With cylinders firing directly across from one bloc to that opposite, a prolonged impulse (greater than 180 degrees) is given. This means that wear on bearings, and loss of power, are minimized. Consider the difference between this and the impulse occurring 18 inches apart on the crankshaft.

There's More to it, Too

You will understand why the Ferro V-Type develops .24 h. p. per cubic inch of piston displacement when you get all the facts about it.

Overhead valves (without cages)—

Completely-machined combustion chambers, counter-bored so that pistons over-travel—

Water-jacketed intake-manifold, delivering gas at outlet-water temperature—

Light weight of valve-reciprocating parts—

All these things contribute to power, flexibility, economy and sweet-running smoothness. The engine is equally notable for durability, accessibility and low weight—for equally good reasons of ingenious design and accurate manufacture. Get the whole story—write for completely illustrated booklet.

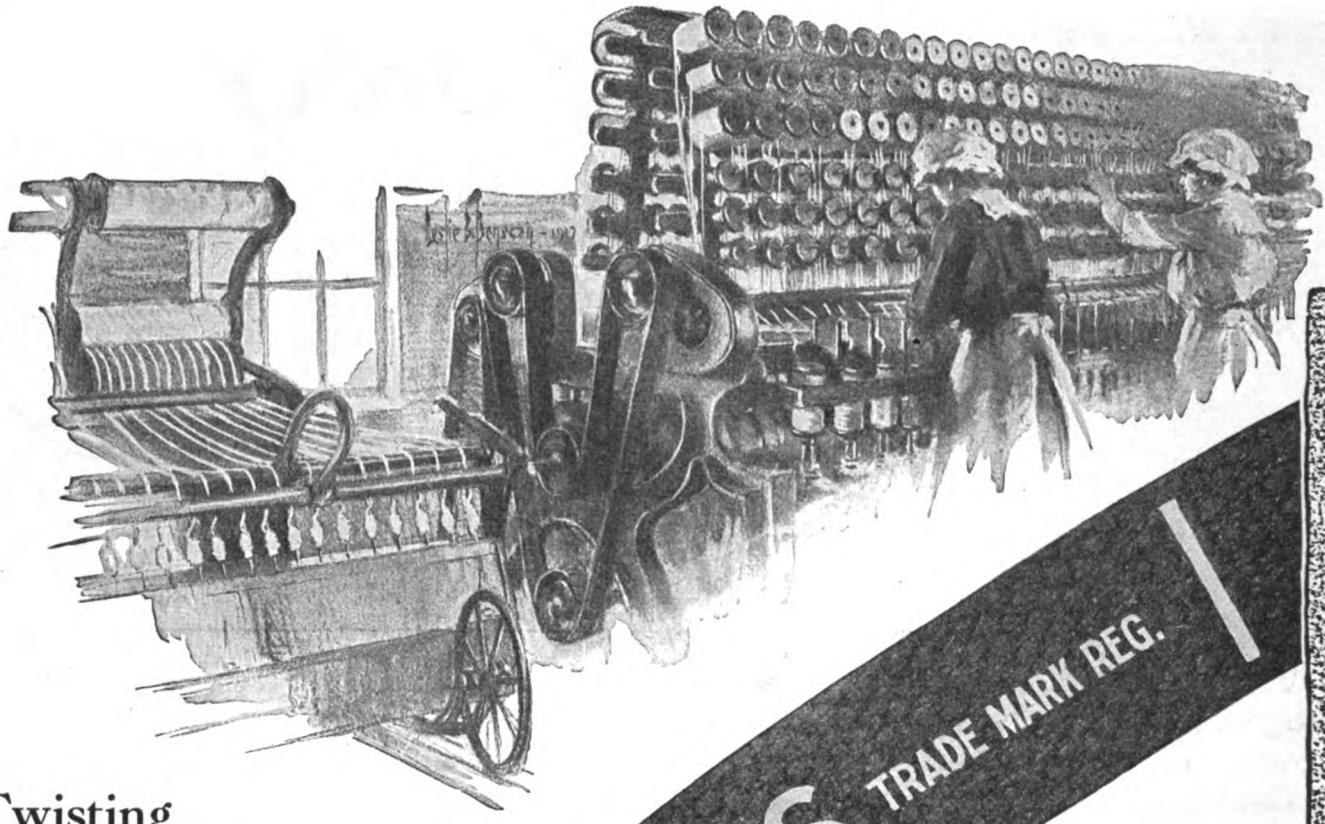
More power per cubic inch of piston displacement, or per pound of weight, than is given or claimed by any other automobile engine manufacturer today.

THE FERRO MACHINE & FOUNDRY COMPANY
393 Hubbard Ave. Cleveland, Ohio

FERRO MOTORS
Reg. U.S. Pat. Off.



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Twisting Asbestos Yarn and Winding with Brass Wire

MULTIBESTOS TRADE MARK REG.

One quality of Multibestos which distinguishes it above all other brake lining materials is the closeness of its weave. This feature is made possible by giving the yarn a sufficient tensile strength. First the asbestos is carded and twisted. Later it is twisted again on what are called Mule Spinners.

When this process is completed the yarn has all of the strength which can possibly be given to any pure asbestos material. But this is not strength enough. Still a further process is necessary and so we interwind the asbestos with brass wires.

The result of this twisting and interwinding is a material of tough firmness—absolutely heat proof. It is now ready for the severe strain of the high speed looms which weave it into Multibestos.

Other processes in the evolution of Multibestos will be described in future advertisements in this paper.

STANDARD WOVEN FABRIC COMPANY
WALPOLE, MASS.

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NORTHWAY TRAILERCAR

A Pioneer Field *for* Dealers

Substantial profits are in sight for the enterprising dealer who establishes himself in the NORTHWAY business this spring.

It is a lusty and fast-growing "infant industry." It is paying big returns to the reliable dealers who are developing it in their own sections—anywhere that autos and light trucks are used.

There is no limit to the field. The product has been on the market two seasons, thoroughly tried out, practically all sales to date made through the "boosting" of satisfied users. The margin is liberal. No "service problem" to eat into the profits.



DEALERS WRITE TODAY

Get the proposition before somebody beats you to it. We have open county territories remaining in about 28 States at this writing (March 8), and are making prompt deliveries.

MODEL 20 NORTHWAY TRAILERCAR—Capacity 1 ton (conservative rating); shipping weight, knocked down in crate, 850 lb.; standard automobile construction—springs, axles, fenders, substantial bodies; standard makes pneumatic tires; hardwood chassis beams, etc. Price, complete and fully guaranteed, $225.

ALSO MODEL 14 NORTHWAY TRAILERCAR—Capacity 1400 lb.; shipping weight, as above, 750 lb. Price, complete and fully guaranteed, $195.

ALL NORTHWAY trailercars are four-wheelers, with the patented NORTHWAY coupling and draw-bar, attachable to any make of auto or light truck in a moment, without tools, and instantly detachable. The NORTHWAY *tracks*, and is a practical, successful vehicle for all city or country traffic conditions.

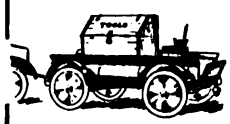
Shipments made knocked down, crated. We can ship 27 of the Model 20's in a standard box car.

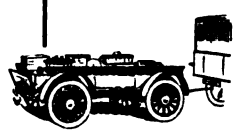
Northway Trailercar Company

Successor to Rochester Trailer Co. Soundly financed by conservative business people who are actively interested in the management. No stock for sale

143 Boulevard, East Rochester, N. Y.


For Dairymen


For Contractors

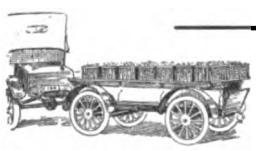

All Delivery Purposes


Camp Outfit


For Live Stock


Pianos and Furniture


Freight and Baggage

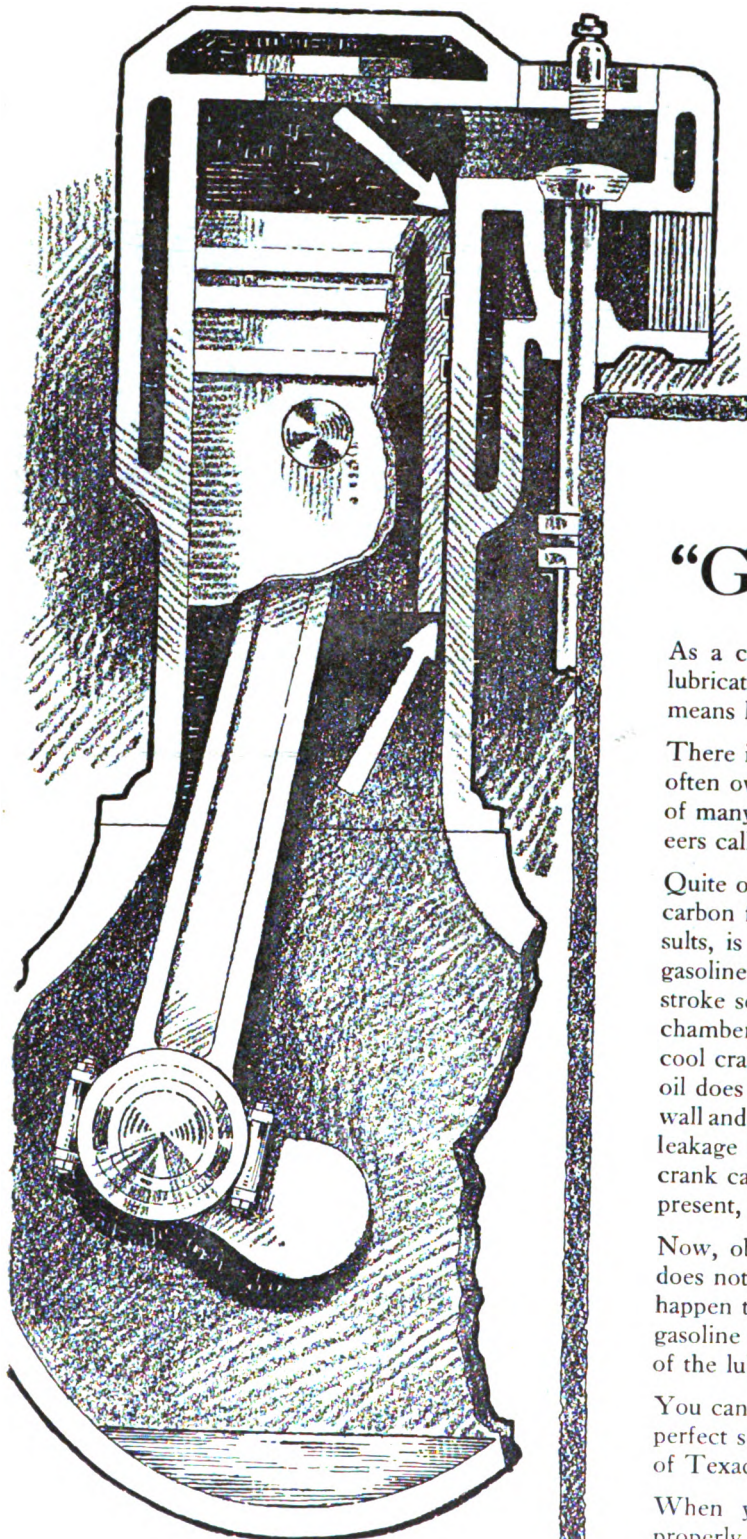

All Over The Farm


Retail and Wholesale

Speed with Safety


Plumbers and Painters

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TEXACO MOTOR OIL

Avoid "Gasoline Leakage"

As a car owner you cannot know too much about lubrication and lubricating oils. Lack of knowledge means loss of pleasure, loss of time, loss of money.

There is one underlying phase of the subject which is often overlooked by motorists and yet which is the base of many lubricating troubles. We refer to what engineers call "gasoline leakage."

Quite often an oil which from other standpoints — its carbon forming proclivities for instance—gives good results, is not a satisfactory lubricant because it permits gasoline leakage. This means that on the compression stroke some of the gaseous mixture from the combustion chamber leaks past the piston rings and condenses in the cool crank case. This action is due to the fact that the oil does not perfectly seal the space between the cylinder wall and the piston and piston rings. In some cases this leakage has been so marked that oil taken from a crank case has, due to the large amount of gasoline present, exploded when touched with a match.

Now, obviously, gasoline is not a good lubricant. It does not take much speculation to determine what will happen to a motor in which oil is used that permits gasoline to leak into the crank case and become a part of the lubricant.

You can avoid this trouble, you can gain assurance of a perfect seal between piston and cylinder walls by the use of Texaco Motor Oils.

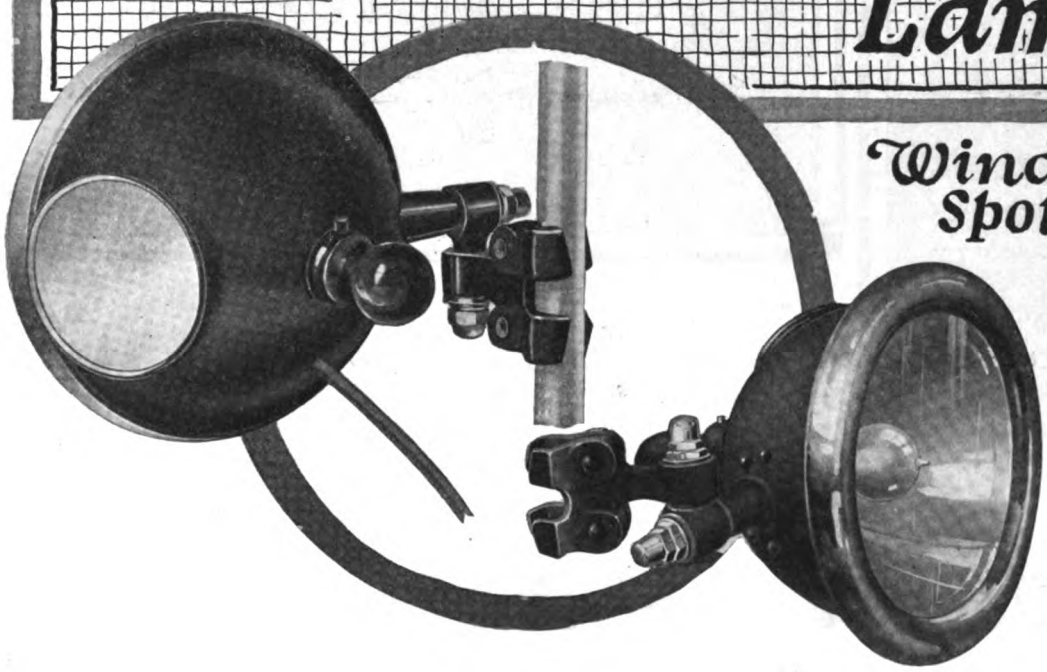
When you employ a grade of Texaco Motor Oil properly adapted to your motor no gasoline leakage can take place. A perfect seal is maintained at all times. As a result the oil does not deteriorate and lose its original lubricating qualities.

When you buy motor oil buy Texaco. The best way, the safest way, is in one or five gallon cans.

THE TEXAS COMPANY
New York Chicago Houston
DISTRIBUTING OFFICES IN MOST CITIES

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VICTOR Lamps—



Windshield Spotlights—

Model No. 50 Electric Spotlight sells for $5.00. It is equipped with our rolled push button nickled door, silver plated brass reflector, positive switch in handle and 5 ft. of connector cord with terminals.

It is attached to the windshield by a substantial malleable bracket with nickel plated nuts permitting it to be turned in any direction or reversed.

The back of the lamp is fitted with a rear view diminishing mirror.

LARGE scale production supplemented by thorough organization, with specialized manufacturing experience is bound to produce the most satisfactory results in any line, both to the manufacturer and the customer.

The combination which created the Corcoran-Victor Company was brought about with this purpose.

We secured the greatest efficiency and economy in production on the one hand, permitting us to give the high quality goods which have made our brands famous at a minimum price, while at the same time enabling our customers to concentrate their dealings with one firm and secure a complete line with minimum of trouble and expense.

Jobbers who have not yet learned the value of our products can test the Corcoran-Victor line in no better way than by stocking the Victor Model No. 50, Windshield Spotlight. A spotlight that is equalled by no spotlight on the market whatever its price—yet one that sells at a price moderate enough to make it popular with all classes, attracting at the same time the most discriminating purchasers.

This combination of high quality with low price is a characteristic of the whole Corcoran-Victor line.

Another interesting phase of the Corcoran-Victor line is our oil lamps—Items which the popularity of gas and electric lamps have caused to be neglected by ordinary manufacturers.

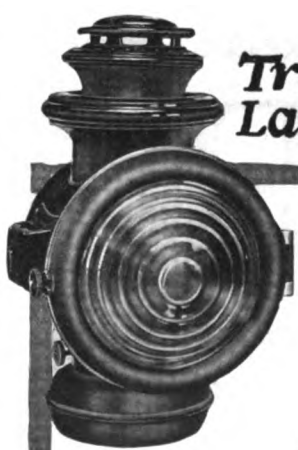
We can offer you oil lamps of the best construction—oil lamps GUARANTEED TO BURN.

Our Model No. 79 Side Lamps sell at $10 per pair. They are handsomely finished in black and suitable for pleasure cars but because of their strength and ability to stand vibration they are especially adapted to trucks. Model No. 69 Rear Lamp is suitable for use with No. 79 Side Lamps. It has a ruby glass rear light and is very attractively finished in black enamel. It is suitable for use as a rear lamp for Fords and other cars for which rear oil lamps are NECESSARY.

In addition to lamps the Corcoran-Victor Company sells a complete line of Tool and Battery Boxes of all sizes, covering the possibilities of almost all cars. They are very strongly built and finished in black japan and fitted with Yale or Victor Locks.

Prices range from $2.35 to $2.80

Truck Lamp—





Round Oil Tail Lamp

CORCORAN-VICTOR CO.

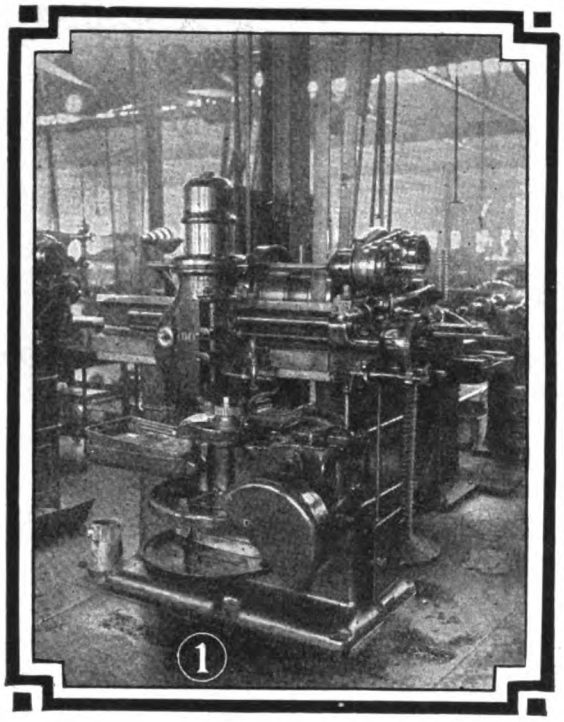
Everything a Jobber Needs to Carry

Cincinnati, Ohio



Tool & Battery Boxes—

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1. *Latest-type gear shaper now used in Briscoe factories*
2. *Big batteries of Briscoe gear cutters and shapers*

Perfection of Parts
Result of Perfection of Plants

Of the six largest automobile manufactories in the country, this one has been equipped at the latest date. Most of the machinery now in our ten great factories has been installed in the last two years. As a result the most efficient units, known in the industry, prevail here.

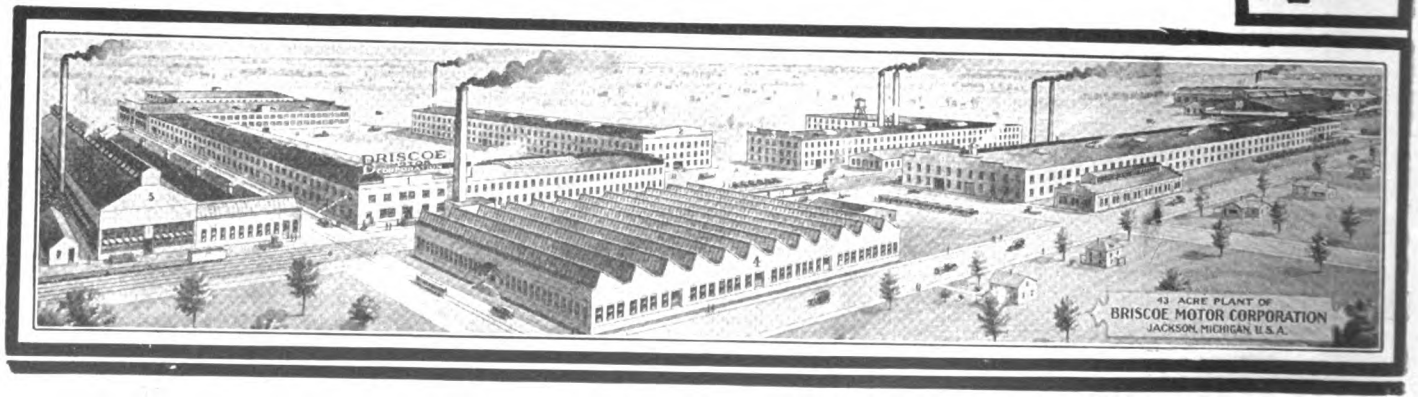
Our gear department is an example of how by up-to-date methods quality is kept up, costs kept down and quantity production maintained. This also means standardized parts—each one exactly like all others of the same kind, which makes possible low prices on replacement parts.

A Great Dealer's Opening

exists wherever there is Briscoe territory unclosed. Our Statistical Department can show you exactly the size of the opportunity in your territory. The profit per car is the largest in this class. Send for our complete proposition.

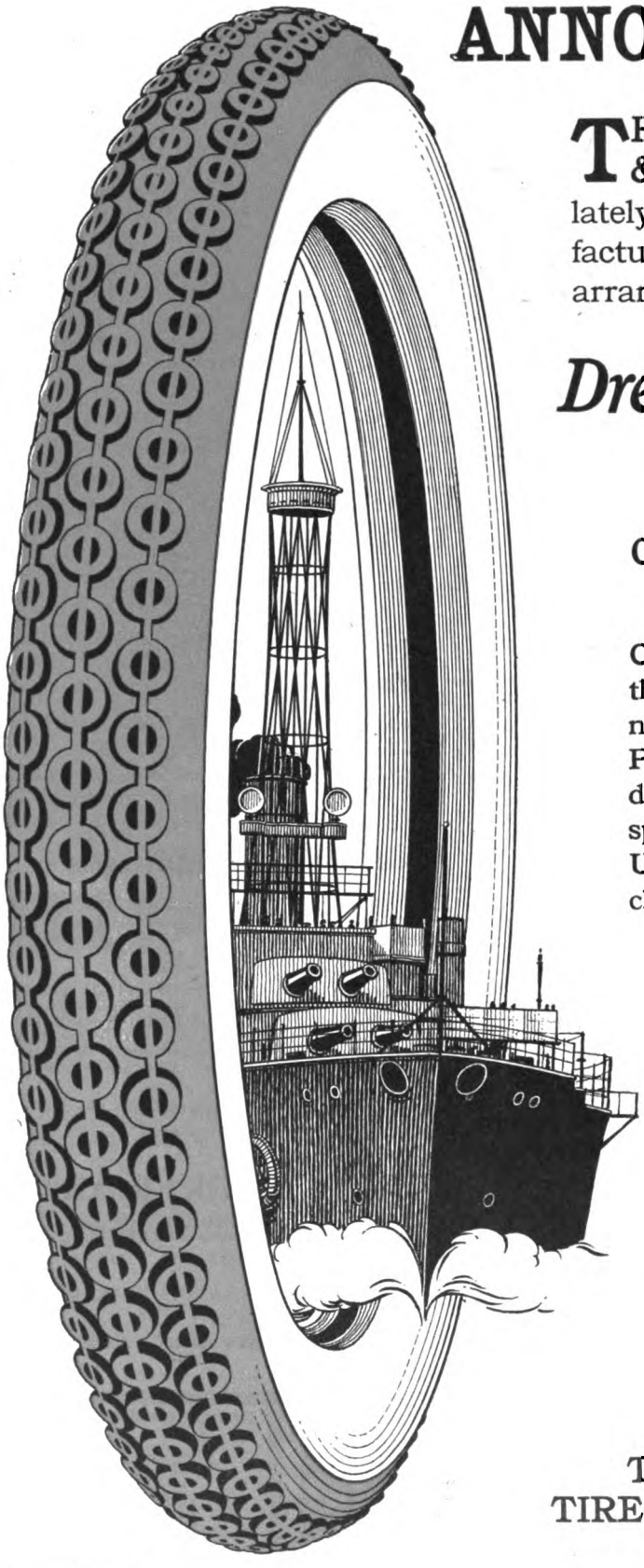
BRISCOE MOTOR CORPORATION, Dept. 46, Jackson, Mich.

BRISCOE $685
The Car With The Half-Million Dollar Motor FULLY EQUIPPED



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ANNOUNCEMENT



"Vacuum Tread"

THE DREADNAUGHT TIRE & RUBBER COMPANY lately reorganized and its manufacturing facilities enlarged, has arranged to market the output of

Dreadnaught Tires

"Built to Conquer"

THROUGH

CHARLES F. U. KELLY, INC.

1834 Broadway, New York

Charles F. U. Kelly, Inc., will be the Sales Department of The Dreadnaught Tire & Rubber Company. Prospective Dreadnaught Tire distributors and dealers are respectfully referred to Charles F. U. Kelly, Inc., for terms and "Exclusive Dealers Proposition."

The advertising of Dreadnaught Tires will be under the direction of Charles F. U. Kelly, Inc., Sales Department, to insure the closest co-operation with Dreadnaught Tire dealers.

DREADNAUGHT TIRES are guaranteed for 5,000 miles and are made in all sizes and styles with two treads—"Vacuum Tread" and "Ribbed Tread." They are of supreme quality — the greatest satisfaction and value is assured the motorist.

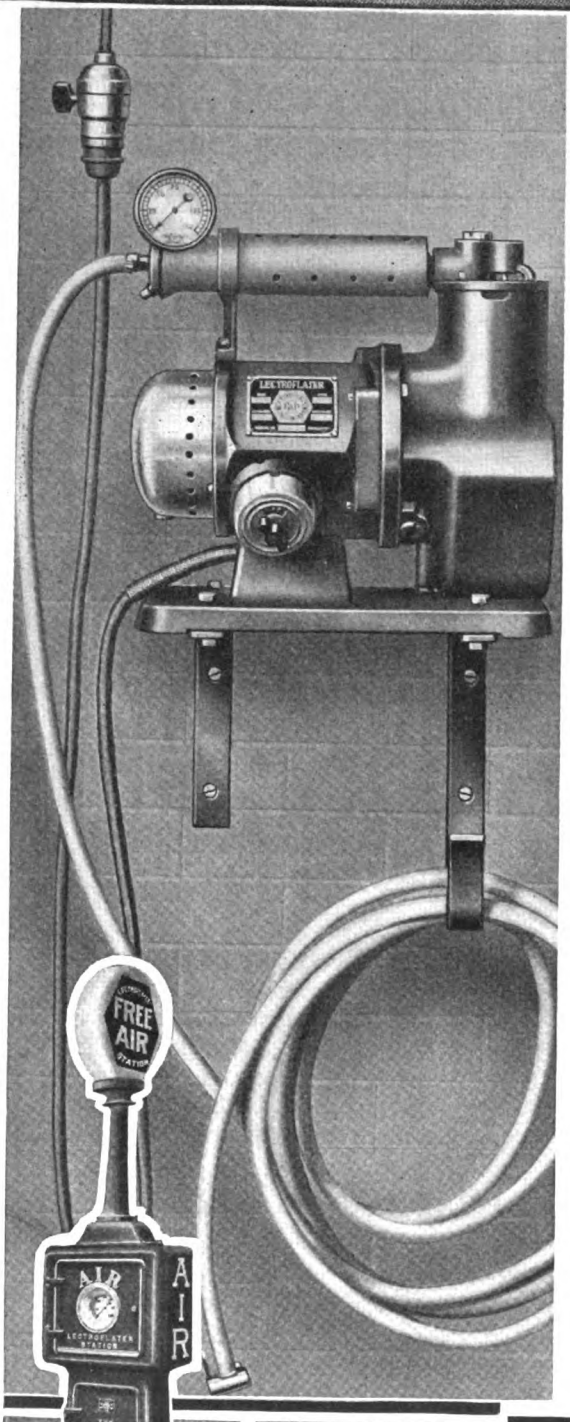
THE DREADNAUGHT TIRE & RUBBER COMPANY

BALTIMORE, MARYLAND

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LECTROFLATER

ELECTRIC AIR PUMPS



What Makes Lectroflater Pumps Different—and Better?

You have probably noticed that most electric air pumps are just standard motors and compressors bolted together and then covered with paint. They are both big and clumsy.

Lectroflater Pumps are different. Lectroflater Pumps are completely built, self-contained little-power plants.

There is nothing assembled about them. They are as accurately built, as scientifically designed, and as carefully manufactured as a high grade automobile motor.

That's why Lectroflater Pumps wear years longer and give so much greater all-round better satisfaction.

Lectroflater Pumps are the most powerful, quick acting air pumps of their size in the world. They are extremely compact in size and almost any model can be easily carried about like a satchel or mounted on the wall with brackets.

We guarantee that any size Lectroflater Pump can be run continuously for hours without heating and that it will inflate to 125 lbs. air pressure without over-heating.

We guarantee that Lectroflaters will pump only cool, clean air totally free from oil spray.

Lectroflater Pumps are, we believe, the most accurately designed, carefully machined, quality made pumps on the market.

Note these Advantages

Universal Motor; uses either A. C. or D. C. Runs from any electric-light socket. Robbins and Myers Motor Windings.

Extremely economical; uses about the same current as an electric fan. Patented automatic cooling system; 100 per cent efficient. Lubrication; capillary system; requires no attention; reciprocating parts; counter balanced. All working parts under a single housing. Silent and smooth running throughout.

High pressure hose with quick-acting coupling. Long electric cord with attachment plug. Accurate automatic air gauge which shows pressure in tire before, during and after inflation.

LECTROFLATER Pumps are built in many types and sizes to fit almost any pocket book. Portable pumps of different capacities, curb outfits, tank and pump outfits, wall outfits. Write for complete catalogue. Price range from $45 up.

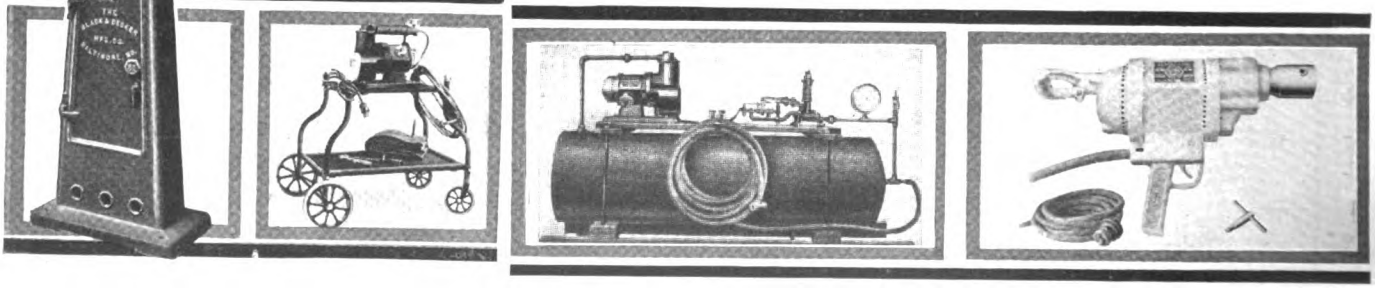
District representatives wanted. Attractive proposition. Write.

THE BLACK & DECKER MFG. CO.

Manufacturers of portable electric tools and special machinery of quality.

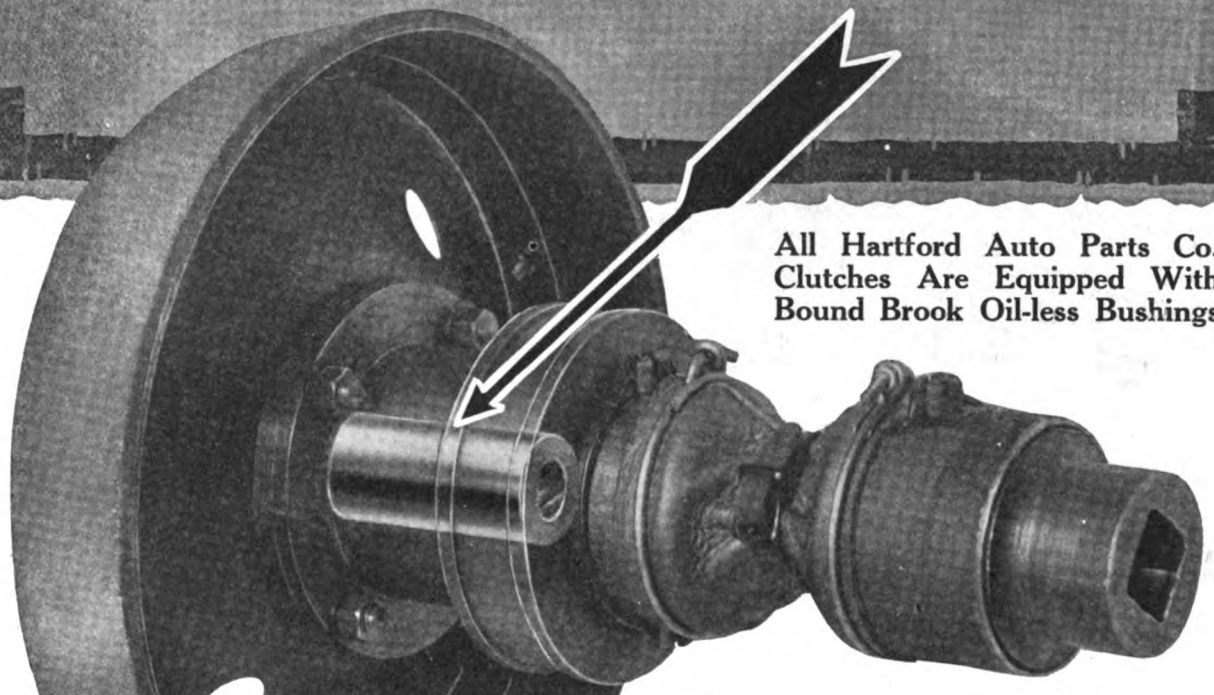
107 S. CALVERT STREET, BALTIMORE, MD.

Canadian Distributors: The Northern Electric Company LIMITED Montreal



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In The Clutch



All Hartford Auto Parts Co. Clutches Are Equipped With Bound Brook Oil-less Bushings

BOUND BROOK

TRADE MARK REG. U. S. PAT. OFF.

Oil-Less Bushings

Hard, rough, constant service is the certain fate of clutch bushings.

Efficient lubrication is their only hope for a long life of service.

But being inaccessibly located they are difficult to lubricate and are usually neglected.

Therefore, many clutch manufacturers use "BOUND BROOK" (*Graphite-and-Bronze*) Oil-less Bushings—just as these bushings are used all over the country in pleasure cars, trucks, submarines and aeroplanes—and all kinds of other machinery—where self-lubricated bushings are essential.

BOUND BROOK Graphite and Bronze Oil-less Bushings requile less lubricating attention to give efficient service.

Oil does not harm these trouble-less bushings.

Made of finest bearing bronze, so constructed as to retain our special lubricating graphite. Bound Brook Bushings have made a record for long life and perfect service under all conditions that is absolutely unapproached by ordinary bushings.

They spell ECONOMY and EFFICIENCY in capital letters, as all who use them testify.

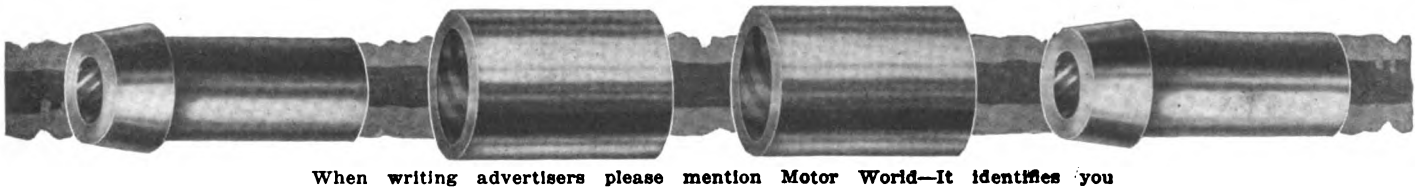
We also manufacture "NIGRUM" (*Impregnated Wood*) Oil-less Bushings.

All genuine Graphited Oil-less Bushings have always been made at Bound Brook, U. S. A.

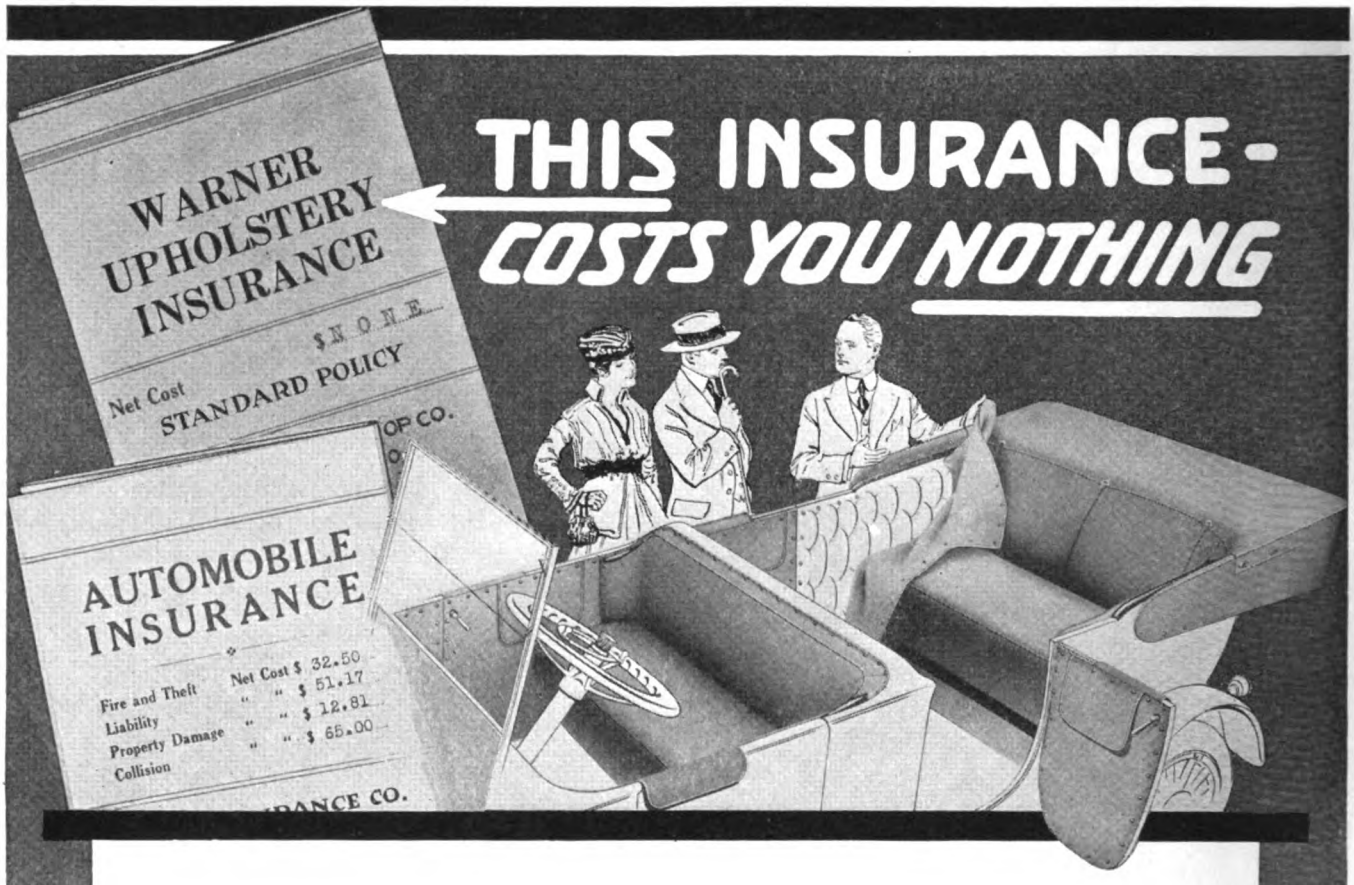
BOUND BROOK OIL-LESS BEARING COMPANY

Specialists in the manufacture of Oil-less Bearings for more than a Third of a Century

BOUND BROOK NEW JERSEY



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You don't get a cent in return for your insurance premiums for liability, fire, theft, property damage, or collision except in case of actual loss. They add nothing to the life of your car or to the resale value when the time comes to turn the old car in. Yet every prudent car owner covers these risks before taking a new car on the road. On the other hand, you begin to get increased enjoyment and satisfaction from your car, to realize that you are preventing depreciation and adding to its life, to derive greater comfort and service from your investment and to insure a better resale for your car the moment you equip it with

WARNER AUTO UPHOLSTERY COVERS

FIT LIKE A GLOVE
DUST-PROOF WEAR-PROOF

And, best of all, that increased resale value amounts to far more than the price of the covers, which, therefore, cost you nothing. They protect your upholstery and keep it clean, fresh, unfaded and shapely. At the end of the season of hard service the leather and tufting will be as good as when you took your car from your dealer's wareroom. Think of what this means to you. Tires can be patched and vulcanized. Valves can be ground. Brakes can be relined. Spring leaves can be replaced. Fenders, hoods, tops and all structural parts can be repaired. But shabby upholstery means a shabby car and a shabby car brings a shabby price. Insure what you can't secure.

Warner Auto Upholstery Covers are sold and installed by the better class of dealers all over the world. Fit, workmanship, materials and styles to suit every car and every purse. Samples and prices on request.

The Warner Auto Top Co.

Established 30 Years

Central Avenue **Cincinnati, Ohio**

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BACK YOUR BUSINESS with OUR MONEY and METHODS and Watch It GROW



THE coupon below brings you particulars about a plan that will double and triple your motor car sales and make every one of them far easier to close.

You can hook up your business to it at once without a cent of investment on your part. It is the biggest thing ever offered to the automobile dealer.

Don't lose a single moment in getting full information. Your big selling season is on. Clip the coupon and send it back to us at once—this minute.

Better still, wire us for details, phone, or take the first train to Chicago and talk it over with us personally.

M.W.L.
National Bond and Investment Co.
First National Bank Bldg., Chicago
If you can increase my business, I want to know how. Send me full particulars without any obligation to me.

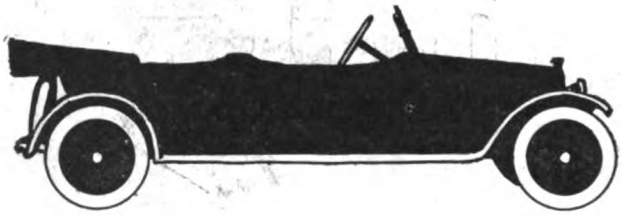
Name .....
.....
Address .....
City .....
State .....
I am agent for ..... cars.

National Bond & Investment Company
(Not Inc.)
Melville N. Rothschild — *John L Little*
First National Bank Building — CHICAGO, ILLINOIS

When writing advertisers please mention Motor World—It identifies you

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BOWER SAVES POWER

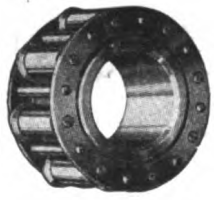


The Inaccessible Places

In **any** part of a car, the adjustment of bearings is a job requiring mechanical skill and painstaking care.

When it comes to making these delicate adjustments in such places as the transmission and the differential the job becomes still more difficult and expensive.

Bower Bearings **never need adjustment** because the rollers are self-aligning—they have a maximum of bearing surface and any possible wear is reduced to the absolute minimum.



BOWER
ROLLER BEARING CO.
Detroit Michigan

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Better Clutch Facings for Less Money

Leathertex



Cone Clutch Facings

Fully Protected by Patents

A combination of specially-tanned leather and textile really merged into *one*.

More durable than solid leather.

More resilient than solid leather.

Holds its shape better than solid leather.

Available in thicknesses not to be had at all in solid leather.

Cheaper than solid leather.

Write today for full information and prices, together with name of jobber nearest you.

Cortex

DISC CLUTCH FACING

Patent Applied For

Cortex is not asbestos—nor any combination of asbestos. Consequently it is *easy* to get—in practically any quantities you want. Then in addition, Cortex

will not glaze over or become hard in use.

Requires materially less spring pressure.

Presents a better co-efficient of friction.

Costs from ½ to ⅓ less than asbestos.

Cortex bears the endorsement of leading engineers. Suitable for any size or type of disc. Write for further details and name of jobber nearest you.

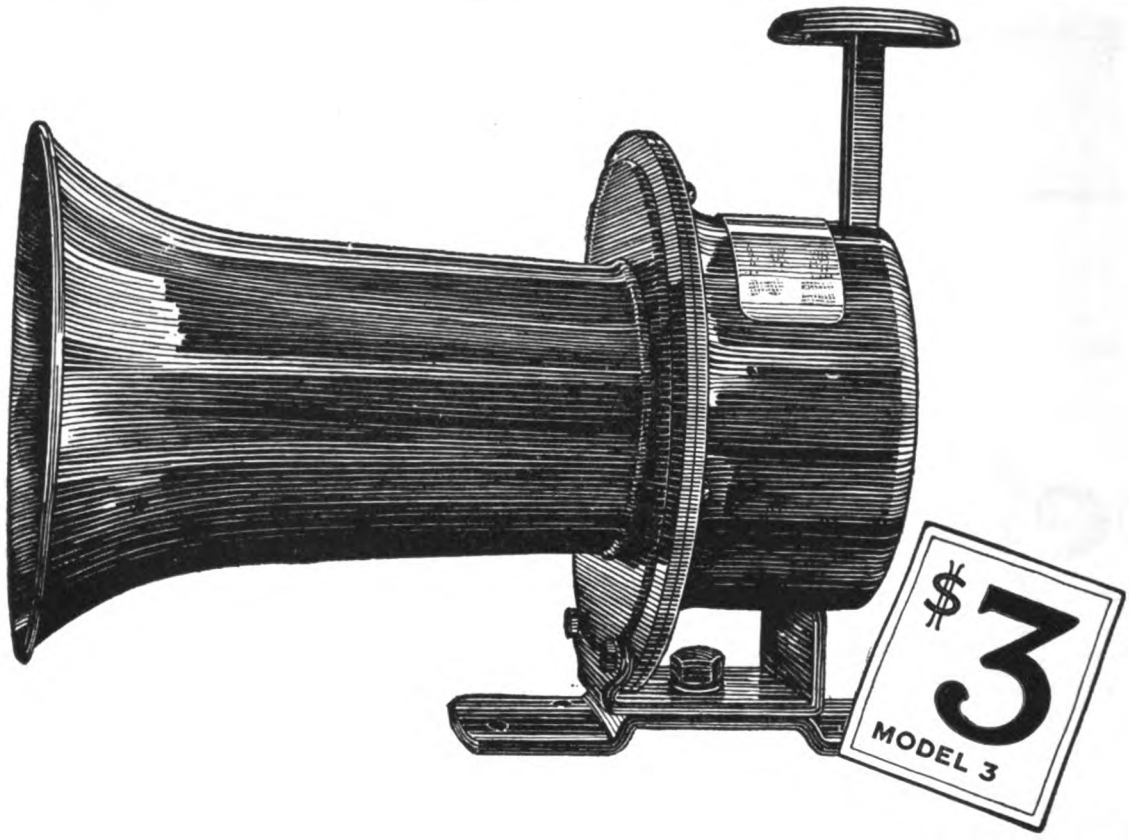
Hide, Leather & Belting Co.

227-D South Meridian St. INDIANAPOLIS

Cone Clutch Facings
Disc Clutch Facings
Fan Belts
Frame Padding

Round Fan Belting
"V" or Flat Fan Belting
Flexible Metallic Tubing
Crank Holders

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Its Speed Means Safety

Why this horn is fastest

Speed of action—the ability to shoot out a warning signal at the rate of 925 miles per hour—makes the Long Horn superior to other horns.

Always warns; never offends

The instant you *push down* the easy-working plunger you get the full force of the characteristic GR-R-R-R that warns but does not offend.

This speed means everything to you in an emergency. It leaves nothing to chance. The Long Horn's superior speed is due to its patented mechanism, invented by G. F. Long.

A horn of quality

The G. Piel Company, pioneers in the manufacture of hand-operated warning signals, guarantee the quality and durability of the Long Horn.

Never out of order

The simple, strong mechanism of the Long Horn is never out of order. You can always rely on it.

The new Long Horn—Model 3—sells for $3.

Write today for full information.

Sales Department

EDWARD A. CASSIDY CO., Inc.

Maidson Ave. at 40th St. New York

Manufacturers

THE G. PIEL CO., Inc.

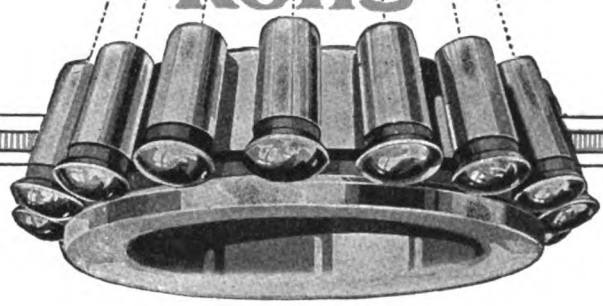
Long Island City, N. Y.

LONG HORN

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BOCK

Everything Rolls



End friction—the source of constant wear and tear in most bearings—**is entirely eliminated in the Bock.**

The bearing end of each Bock roller is a section of a sphere—and **rolls.**

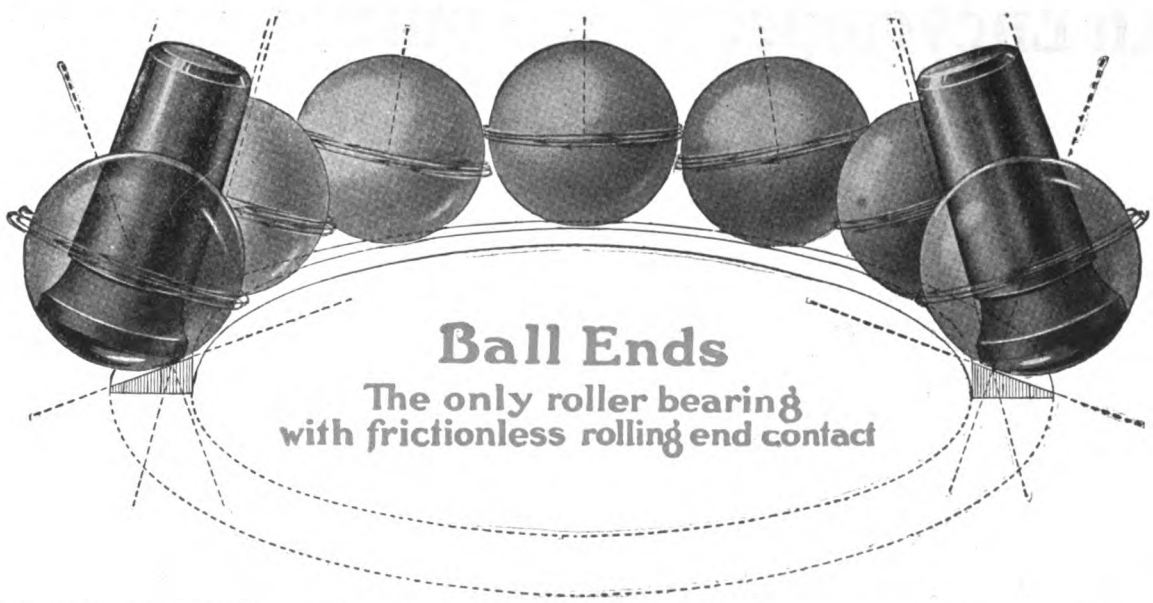
And in addition to this exclusive and invaluable feature the Bock gives you all the load carrying capacity of **any** roller bearing.

It combines the best features of **both** the roller and the ball bearing.

Everything rolls in the Bock.

And automobile engineers are practically unanimous in their approval of it.

So great is the demand for Bock Bearings that we have had to triple our factory facilities to handle the tremendous increase in business.



Ball Ends

The only roller bearing with frictionless rolling end contact

The Bock Bearing Company - - - - Toledo, Ohio

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COMING!

The 4th Annual

MOTOR AGE

Offering unusual advertising value, due to increased circulation, and the further fact that this special issue will be preserved indefinitely as a touring reference, thereby materially lengthening the life and effectiveness of every advertisement.

An Encyclopedia of Touring Information

This issue will be a touring guide for every motor car owner desiring first-hand information for week-end trips, vacation trips and long tours.

Three-colored map supplement containing routes throughout country in addition to sixteen pages of detailed maps and touring data—mapping practically every tourable mile of roadway in the United States!

This Special Number will show the main transcontinental routes, the north and south routes, and routes for short trips, from and to any city in the country.

The Class Journal Company

NEW YORK CITY 239 W. 39th St.
CHICAGO Mallers Bldg.
DETROIT 95 Fort St., West

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COMING!

Touring Number

APRIL 5, 1917

PRICE 25 CENTS

1917 promises to be the biggest touring year in the history of motoring. Dealers along established touring routes are already stocking heavily in anticipation of an unprecedented demand for accessories and supplies.

Make Your Space Reservation Now!

Advertise in this special issue with space commensurate with the confidence you put in your product. Get on the mark for the spring selling season.

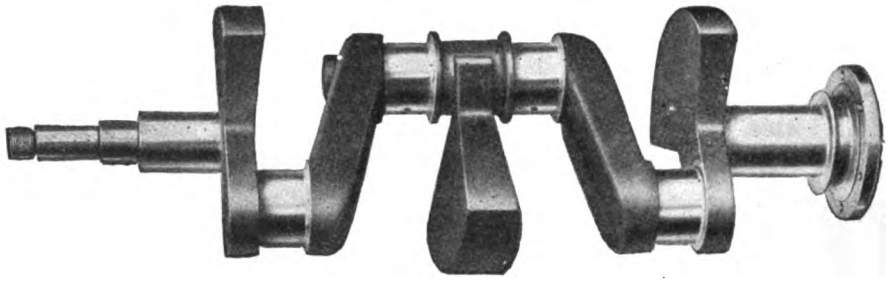
Advertising agencies, advise your clients—ADVERTISERS, instruct your agency to take advantage of the exceptional plus value this special issue affords.

Make space reservation **now.** Wire, phone or write your space reservation to our nearest representative office.

CLEVELAND	PHILADELPHIA	BUFFALO	KANSAS CITY
516 Swetland Building	4318 Chestnut St.	31 Woodward Avenue	1307 Waldheim Building

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MONROE "4"



VIBRATION ENDED
BY MONROE "4" CRANK SHAFT

The Monroe fully counterbalanced crank shaft is a Monroe invention, controlled by Monroe Motor Co. It can be found *only* in the Monroe. And motor car owners who want the increased efficiency *which is only made possible by the scientific construction of this crank shaft,* must buy a Monroe to get it.

The crank shaft in this matchless car and its counterweights are one piece of forged steel without mechanical joints or welds—no studs or bolts to loosen or break—no possibility of defective weld weaknesses.

By the use of this fully counterbalanced crank shaft, waste power has been turned into reserve power. Which means more power for hills, and mud, and sand. Greater flexibility. Quicker response. Unheard of efficiency.

No better proof of the fact that other four-cylinder motor manufacturers recognize the mechanical perfection of the Monroe fully counterbalanced crank shaft can be given than that many of them are today seeking to imitate the Monroe principle of construction.

Lubrication Problems Solved

But the Monroe fully counterbalanced crank shaft in itself has not made possible the 40 per cent increased efficiency of the Monroe. Of equal importance are a perfect system of lubrication, practically eliminating friction, and a highly improved method of carburetion.

By a continuous flow of oil through the crank shaft, only a part of which is used for actual lubrication, the temperature of the crank shaft is kept low and the lubricating value of the oil is maintained.

A Pressure Oiling System

Added to this is a pressure oiling system, which supplies oil directly to the motor, which supply is increased in proportion to the power output.

In this way friction is reduced to a minimum. And that means double endurance, greater fuel economy, greater power economy and a smoothness of riding that will show you new delights in motoring.

The Monroe is resistless. Its beauty, its flexibility, its power will delight every motor car lover.

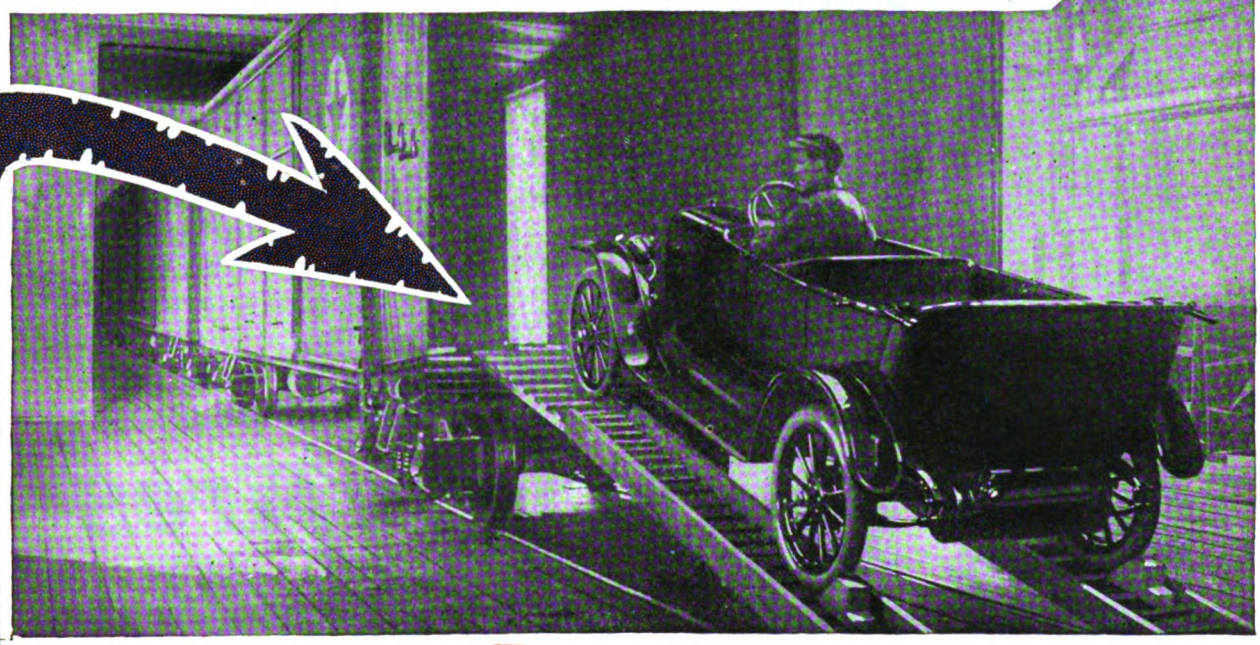
It will be the sensation of the automobile field. Every dealer who handles the Monroe is assured success. You should be one of them.

MONROE MOTOR COMPANY
PONTIAC, MICHIGAN

Makers Also of a Small "Four" in Sedan, Roadster and Club Models

Digitized by Google

It will pay every responsible dealer to investigate The Emerson "Four"



The EMERSON 4

The Automobile Field Is Over-Crowded

The Emerson Motors Company is not simply adding another car to an over-crowded automobile field, but giving the people something different —something better we know than many dollars more can buy. It's the lowest priced 5 passenger 110 inch wheel base car in the world.

With all the many cars on the market no one seemed to realize where the demand was the heaviest. But now the EMERSON "FOUR" fills that gap with a good-looking car that will "*make good*" for little money.

MR. DEALER:

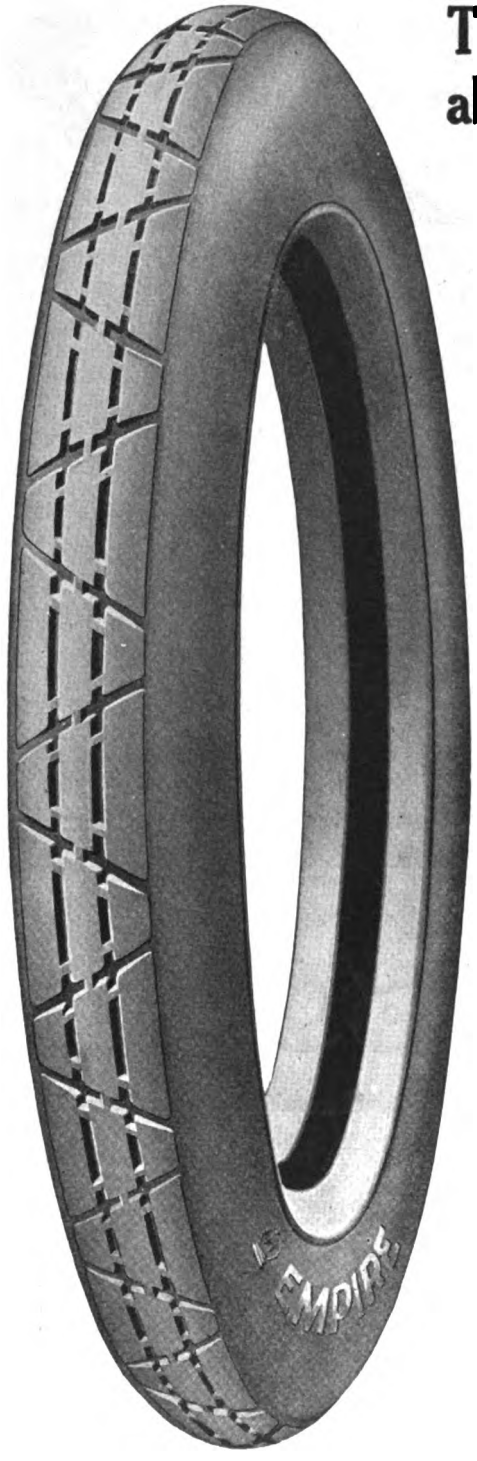
Don't let this opportunity slip by. The EMERSON "FOUR" will be one of the largest sellers this year. The quality and many other good features welded into this car determines the sale.

Write for further particulars—your territory wants this car.

EMERSON MOTORS CO.
KINGSTON, N. Y.

EMERSON
TRADE MARK

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The Two Things Most Desirable to the Dealer Selling Tires

Naturally, profit is the first consideration. But profit, however large, on a sale that does not make a satisfied customer, is not good business.

If it can be demonstrated to you that you can handle Empire Tires at a better profit to you than any tire in its class, and sell them at a price that will insure lower mileage cost to the automobilist, would you be interested? We can show just those two desirable points. There isn't a better proposition in the whole tire field than

Empire Tires

It's worth money to be the "Empire man" in your locality.

Besides giving you more profit, every Empire Tire advertises you and brings you more trade. Empire Red Tires are adjusted on the 5,000-mile basis; Empire Gray Tires on the 4,000-mile basis.

Our advertising runs in leading newspapers and magazines. Ask us to prove to you the greater dealer profit and the lower mileage cost. We have started a campaign for a few more dealers. We will protect you in a territory not now occupied. Write or wire.

EMPIRE TIRE AND RUBBER CORPORATION
Home Office and Factory, Trenton, N. J.

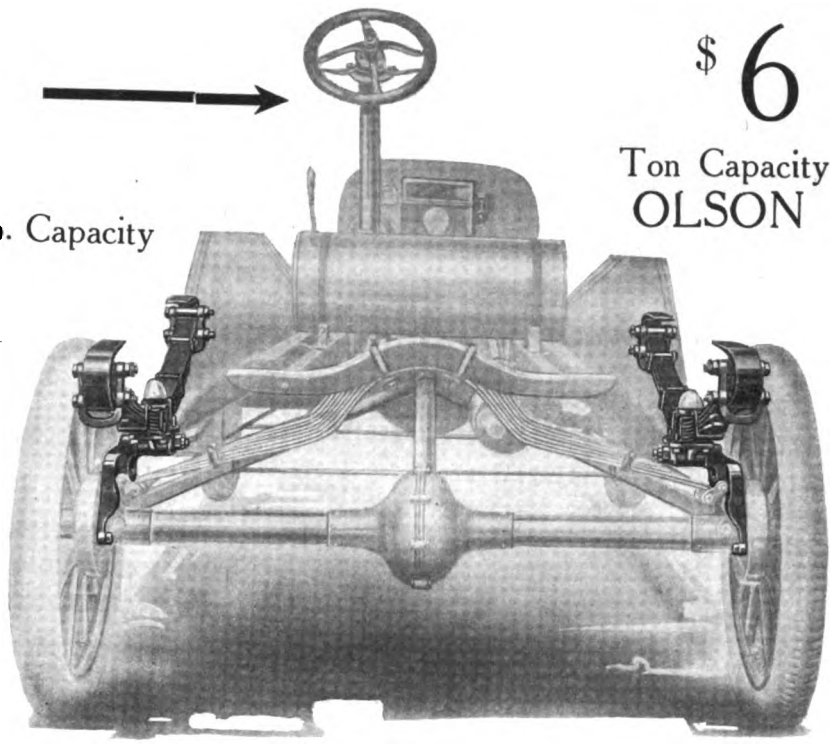
BRANCHES AND AGENCIES:

New York City	Philadelphia	Pittsburgh	Los Angeles	Minneapolis
Boston	Buffalo	Chicago	Detroit	Newark

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$30
1000 to 1500 lb. Capacity

$50
24 or 30 Inch Extension

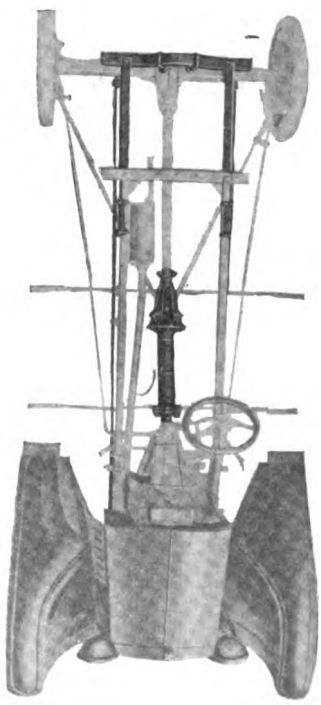


$65
Ton Capacity Without OLSON Brake

$90
Ton Capacity With OLSON Brake

You Don't Need To Oversell With The OLSON Unit For Fords

OLSON Extension—24 or 30 In.



Price $50

OLSON Dealers alone have the advantage of selling prospects a Unit of the capacity they need—without charging a big excess price for useless capacity. Dealers with a 1-ton unit and no other, must sell the man who needs but 1000-lbs. capacity, twice what he needs. And having bought—if he does buy—at a price way above necessity, he has to pay again in running expense for the dead load of an underfilled truck.

OLSON Units fit prospects' needs. **$30** for a 1000 to 1500-lb. capacity OLSON Unit is salable to thousands who won't spend $350 for a ton-capacity unit.

And $90 for the heaviest OLSON Unit —with **special brakes like those on standard trucks**—puts enough money back in the buyer's pockets to clinch business where others fail.

1000 sets of OLSON Units **a day** insure **immediate delivery.** National advertising and more than 50,000 Units in service create a selling demand that pays.

Write for complete details, and liberal offer to dealers, **for profits.**

SWEDISH CRUCIBLE STEEL CO.

Factories
Detroit, Mich. Windsor, Ont., Can.
Chicago Branch: 1344 Michigan Ave.
Address Wheel Department.



5 Leaves for 1000 lb. Loads, **$30**



7 Leaves for 1500 lb. Loads, **$30**



$65
Ton Capacity Without Brake



$90
Ton Capacity With Brake

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Announcement of

To Motor Truck Dealers

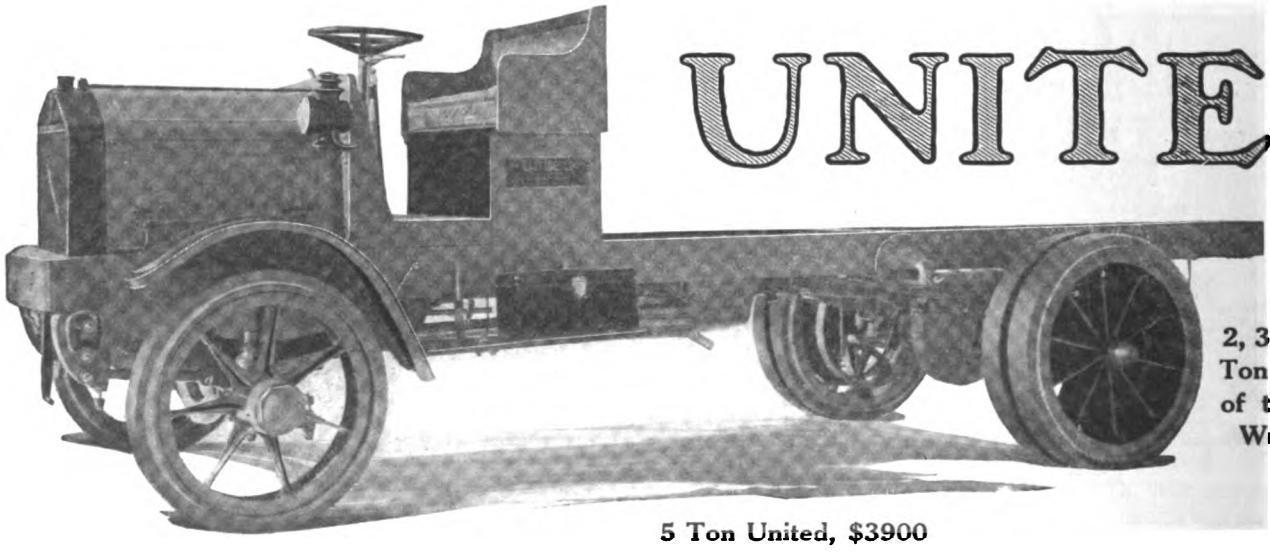
Those Now Selling Motor Trucks

You, perhaps, have been waiting for just this opportunity to secure the selling rights of a representative line of motor trucks—a line already a success and back of which there is an established and progressive organization. This, then, is your opportunity.

Beginning this month the output of UNITED trucks is being practically doubled, enabling us to supply territory which we have hitherto been forced to neglect. Your opportunity to secure an exceedingly valuable sales franchise is obvious.

The UNITED line includes 2, 3½, 4 and 5 ton models —all of which are of the popular worm-drive type. UNITED trucks are built to stand up and give continuous service in spite of the overloads which are so often imposed.

A study of the specifications will convince you that its independence of competition and ready salability have created a rare business opportunity for a number of live, money-making dealers.



UNITED

2, 3½, 4 and 5 Ton Models, All of the Popular Worm-Drive Type

5 Ton United, $3900

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an Opportunity

To Prospective Motor Truck Dealers

Those Who Expect to Sell Motor Trucks

To you who contemplate entering the Motor Truck Selling Field on a substantial basis this announcement is most opportune. It affords you the certainty of starting out with everything in your favor.

It offers you an established line, the salability of which is proven by this increase of our output—it offers a connection with a manufacturing organization which is thoroughly established, experienced and able to assist you materially.

Also we can help our dealers arrange to finance purchasers of UNITED trucks by the time-payment plan. You can readily appreciate the great advantage of this sales help—it makes sales that otherwise could not be made.

Whether you are selling motor trucks today or considering entering this field, it will be to your advantage to get complete information relative to the UNITED line and our new sales proposition. **Real** opportunities do not last long—better wire us **now** for our proposition and an option on your territory.

TRUCKS



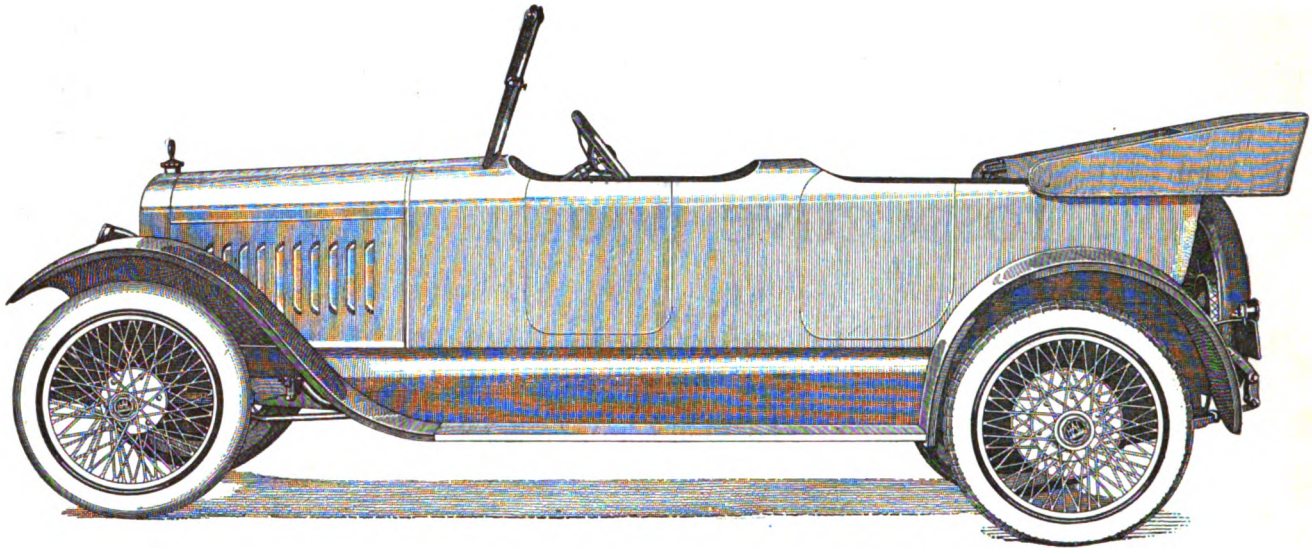
3½ Ton United, $2900

Manufactured by the

United Motors Co.

Grand Rapids, Mich.

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The Hal Twelve

S M O O T H P O W E R

The Hal-Twelve moves so smoothly and with so little effort that depreciation of parts is negligible. Many owners report driving their cars more than a year without a moment's delay or a dollar's expenditure for repairs. The bonnet scarcely ever has to be lifted, except to replenish the oil. Seven-Passenger Touring Car or Roadster, $2600. Limousine or Town Car, $4500.

Prices f.o.b. Cleveland.

Hal Motor Car Company, Cleveland, Ohio

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DUTCH BRAND

Vulcanizing Cement Helps Any Vulcanizing Outfit Make Good

Not infrequently a good vulcanizer is condemned when the vulcanizing cement is at fault. Obviously the best vulcanizing outfit made can do no better work than the cement used will permit.

Thus, the most exacting care in the choice of cement becomes the only true economy—the only assurance against disappointment—the only certainty of a thoroughly high-grade, **permanent** job.

DUTCH BRAND Vulcanizing Cement—standard for years for all kinds of vulcanizing—makes consistently successful work a foregone conclusion. Of uniform quality—"always the same"—dependability has become its best recommendation.

Recommend DUTCH BRAND Vulcanizing Cement to your customers who do their own vulcanizing. Use it in your own shop. Your judgment will be repaid in return patronage many times over. Order of your jobber. Free catalog sent on request.

OTHER DUTCH BRAND PRODUCTS

Auto Patching Cement—ensures a patch that will stick and stay stuck; **2-in-1 Tread Filler,** a liquid rubber, adds mileage to tires; **Rubber-Seal,** permanently heals large cuts and gashes in casings and tubes; **Radiator-Seal Compound,** instantly stops radiator leaks; **Carbo-Cide,** a carbon solvent of unsurpassed merit; **Valve Grinding Compound, Auto Top and Cushion Coating, Gasket Shellac, Varni-Brite,** an auto polish; **Tire Talc** and **Friction Tape.**



"Look for the Dutch Girl on the Label"

VAN CLEEF BROS.

Manufacturers Dutch Brand Rubber Cements and Auto Chemical Specialties

7701-7711 Woodlawn Ave. " " " Chicago, Illinois

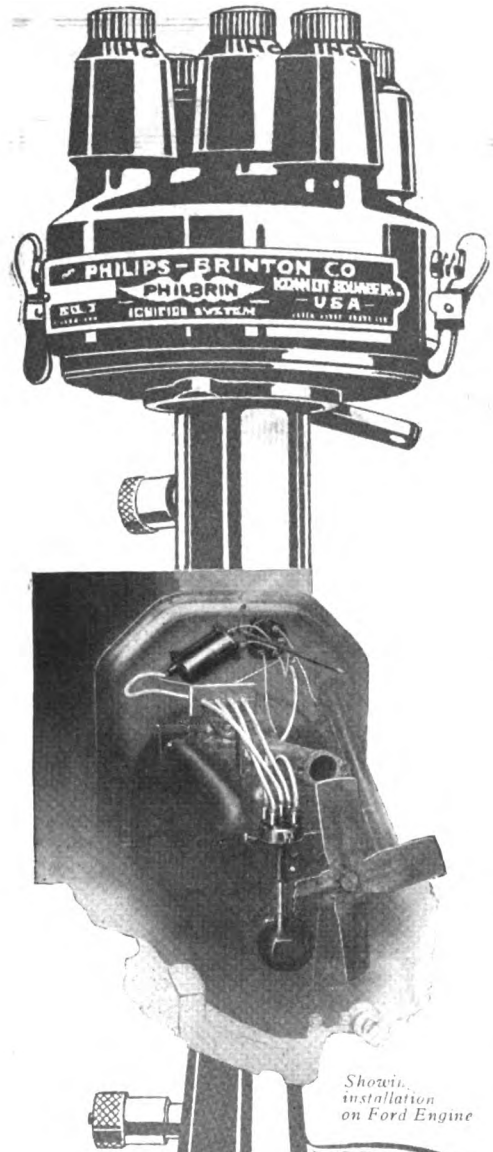


Put Up in Different Size Containers for All Requirements

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PHILBRIN

HIGH FREQUENCY IGNITION FOR FORDS



Showing installation on Ford Engine

More Power—Less Gasoline

THE PHILBRIN HIGH FREquency Ignition System for Fords is **the** one ignition system which has been specifically designed to meet the requirements of the Ford engine.

Heretofore battery ignition systems for Ford cars have derived their current from a set of dry cells or a storage battery.

Utilizes Ford Magneto

The Philbrin Ford System derives its current from the Ford magneto thereby eliminating battery upkeep cost.

However, when desired, batteries can be added, thus providing two sources of current instead of one and further insuring absolute unfailing ignition.

Instead of a single spark, the Philbrin System delivers a "shower of sparks" of remarkable intensity to each cylinder in its firing order at the rate of over *a thousand sparks a second.*

Easy Starting

The intensity of sparks delivered is high at all speeds, no matter whether the motor is merely being cranked or operated at a speed of 45 miles an hour. As a result, starting, or running on high at slow speeds is made extremely easy.

Power *with* Economy

The intensity of the sparks delivered is extremely high, making it possible and advisable to utilize a leaner mixture than is customary with any other ignition system. The saving in fuel is immediately obvious as well as a decided increase in power, for while a lean mixture is more difficult to ignite *it is the most powerful when fired.*

Increases Flexibility

The Philbrin Ford System adds greatly to the flexibility and acceleration of the motor, it being possible to operate a Ford in crowded traffic at an extremely slow speed and to accelerate to maximum speed in a twinkling without the slightest sign of the motor choking or stuttering. Running in low is reduced to a minimum.

By means of this system it is possible to operate satisfactorily on low-grade fuel and to take stiff uphill grades on high without the slightest sign of laboring.

Prevents Theft

Each system is equipped with a positive locking device which absolutely prevents theft of the car.

The Philbrin System for Fords is furnished complete, with all necessary brackets for mounting on the Ford engine. Easy to install.

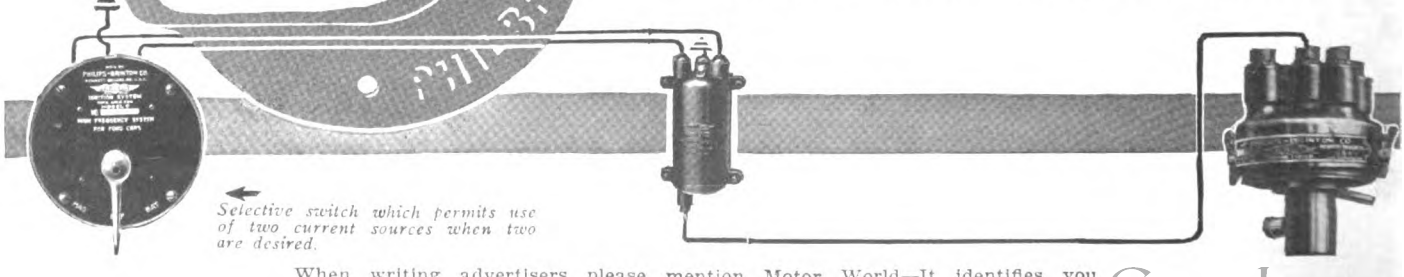
If your dealer cannot supply you, write direct

DEALERS: Write for sales proposition

Philips-Brinton Company

503 So. Broad Street, Kennett Square, Pa.

Sales Office, 1118 Widener Bldg., Philadelphia, Pa.



Selective switch which permits use of two current sources when two are desired.

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BUFFINGTON



Weight 9 lbs. By one move, forcing back forward, all collapses into 3-inch space.

Auto Folding Chairs and Stools

Made of steel, carefully put together, securely riveted, and handsomely finished, Buffington Chairs and Stools are the strongest and most satisfactory for automobile and motor boat use.

They are light in weight, steady on their legs, and easily carried, taking up very little space when folded.



Finished regularly in japan



Rev. Cat. No.	Size Seat	Height
107½ A	9 x 9½ in.	7½ in.
111 A	9 x 9½ in.	11 in.
115 A	9 x 9½ in.	15 in.
117 A	9 x 9½ in.	17 in.

Rev. Cat. No.	Size Seat	Height
212 S	10 x 10 in.	12 in.
215 S	11 x 11 in.	15 in.
217 S	11 x 11 in.	17 in.
215 XS	12 x 12 in.	15 in.
217 XS	12 x 12 in.	17 in.
218 XS	14 x 14 in.	18 in.

This upholstered stool has seats of ½-inch veneer three-ply, upholstered in high grade imitation leather, black or maroon.

It is the lightest, strongest stool manufactured. Get our discounts.



Chair Folded

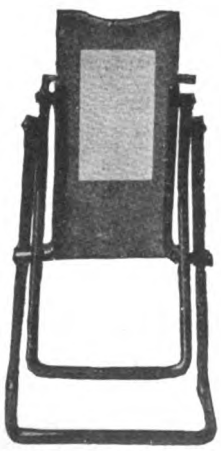
Luggage Carrier

This carrier can be attached to the front seat, and is of great convenience to motorists.

It affords ample room for wearing apparel, blankets, lunch, or any other articles which you desire to carry and to keep protected from dust and rough usage.

There are two pockets for reading matter, clothes brushes, and other small articles. Made of extra quality imitation black leather, it is strong and well constructed, good looking and fits well into the general appearance of the rear compartment. Write for literature.

If not found with your local dealer, send P. O. order or check for $3.50 and we will forward one to your address.



Finished regularly in japan

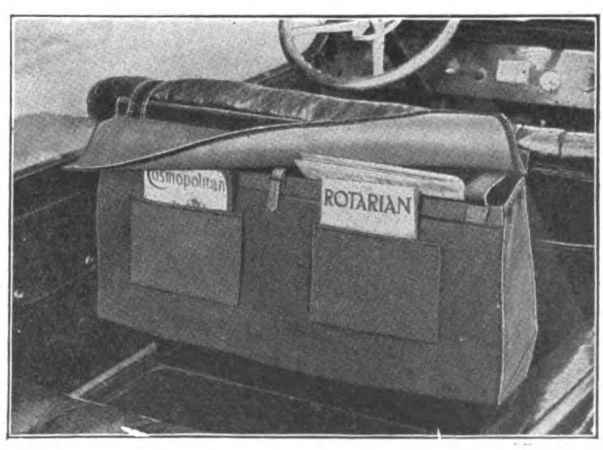
Tire Saving Jack

The Buffington Tire Saving Jack is simple and effective in construction, and will wear indefinitely.

It is easily adjusted to any height of wheel, and a set can be placed under the car in one minute. Press down with foot. No pumping. Their smooth wooden contact points lift the car without injury to paint. Their simplicity, lightness and perfect action make it easy even for a lazy motorist to give proper attention to the saving of his tires by jacking up his car in the garage.

Get Literature on This.
A Post Card Brings It

C. A. Buffington & Co.
Berkshire New York



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MILLIONS IN MERCHANDISE
22,000 SELLERS

MOTOR WORLD
FOR DEALERS, JOBBERS AND GARAGEMEN
PUBLISHED BY
THE CLASS JOURNAL COMPANY
231-241 WEST 39TH STREET
NEW YORK CITY

March 21, 1917

Mr. Manufacturer:-

During 1917 the general volume of business within the automobile and accessory industry will exceed 1916 by no less than 33 per cent.

Therefore, if your volume shows less than 33 per cent gain over 1916 it is apparent that you have not kept pace.

And you will not be satisfied with a 33 per cent gain if greater energy and more intelligent application can promote an increase beyond that percentage figure.

You are anxious, therefore, to embrace the chief opportunities to promote maximum volume, and we therefore urge that you consider the merchandise-promotion possibilities of MOTOR WORLD'S forthcoming SUMMER MERCHANDISING NUMBER - to be published April 26th.

If your product is sold through the motor car trade (or if you think it should be) use representative space with conviction - carrying copy in this big special merchandising number.

MOTOR WORLD is a paper that builds business. Its editorial text is constructive and distinctly helpful to its more than 22,000 readers. As no other paper published it energizes its readers to ACTION; puts them in a buying mood, and promotes alertness for ways and means of bettering their business. They miss no suggestion in either the editorial or advertising pages that can be turned to their profit advantage.

The Dealer and Jobber circulation of MOTOR WORLD will afford an outlet for MILLIONS OF DOLLARS OF MERCHANDISE during the coming summer. Whose merchandising will this be?

The forthcoming SUMMER MERCHANDISING NUMBER will ring up the curtain of the biggest business season in motoring history. Early reservations for advertising space will be appreciated.

Yours very truly,

MOTOR WORLD

Chas. B. Shanks

Manager

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Scripps-Booth Dealers Avoid Competition

People know Scripps-Booth as a good car—and something more.

They know it as a smart car—a distinctive car—a car that they would like to call their own.

Hence, the Scripps-Booth dealer has the start over every other dealer on the street.

The quality, the performance, the economy of Scripps-Booth cars are quite unusual.

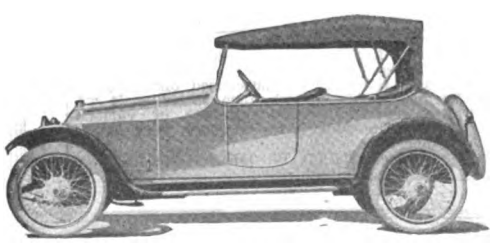
But the elements that remove Scripps-Booth from ordinary car competition—are its luxury, its distinction, its prestige.

The Scripps-Booth dealer who senses the sales advantages of these distinctive elements is bound to make money and build a permanent, secure business.

A few Scripps-Booth dealer opportunities are still open—due to our expansion of production.

They will be allotted carefully to those dealers who show that they appreciate the responsibilities of this connection in the matter of sales organization and service to their customers.

Scripps-Booth Corporation
Detroit, Mich.



Four-Cylinder Roadster	**$935**
Four-Cylinder Coupe	**1450**
Eight-Cylinder Four-Passenger	**1285**
Eight-Cylinder Town Car	**2575**

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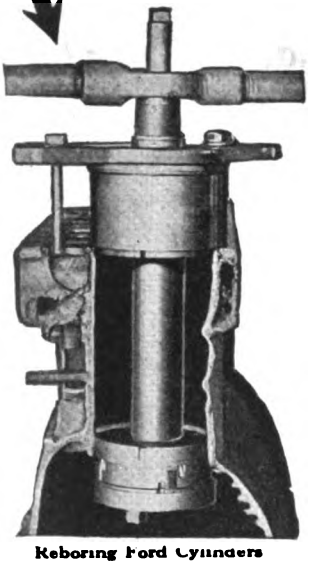
Storm & O'Hair

Cylinder Reboring Machine

Indispensable in Any Repair Shop

Keep Your Shop Busy During Dull Seasons

Big Money Makers Reboring cylinders is an important repair, and is strictly job work. **It pays ten times shop rates** and is a service every car owner must buy sooner or later. Don't deliberately send good paying business, that is rightfully yours, out to competitors. Keep it at home and take the profit for yourself.



Reboring Ford Cylinders

The Standard Improved Machine

is adjustable and will rebore practically

All Makes of Motors

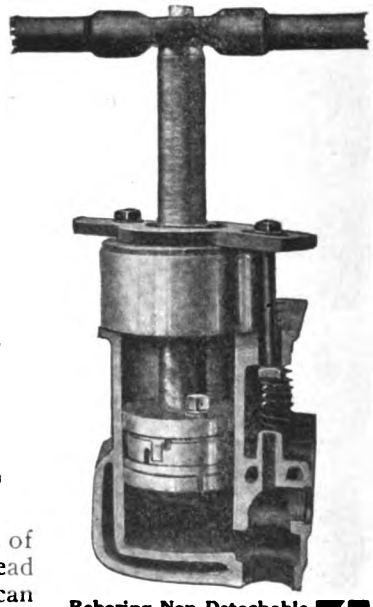
AUTOMOBILE, MOTOR-CYCLE, AEROPLANE, SMALL MARINE, TRACTOR and STATIONARY

A portable machine for operating by hand, low speed drill-press or other power.

LIGHT SPEEDY ACCURATE

AND CAN BE OPERATED BY ANYONE FAMILIAR WITH MACHINE TOOLS

Standard Improved Machine for Fords



Reboring Non-Detachable Head Cylinder

At a lower first cost, is exactly the same as the Ford Part of the Standard Improved Machine. It will rebore Ford and other detachable head Motors of 3¾ in. bore to any desirable oversize. Additional equipment can be purchased at any time, at a moderate cost, to make it suitable to rebore other types, exactly same as Standard Improved Machine.

No. 101 Standard Improved Machine..... will rebore 3¾ to 4½ in.
No. 102 Small head and attachments..... will rebore 2¾ to 3¾ in.
No. 103 Large attachments..... will rebore 4½ to 5 1/16 in.
No. 104 Std. Imp. Mch. for Fords will rebore 3¾ detachable head motors

These are not Experiments but thoroughly tested and reliable machines, with many satisfied users throughout the United States, Canada and Foreign Countries.

SOLD BY LEADING JOBBERS EVERYWHERE

Write Today for Further Information and Prices

STORM & O'HAIR COMPANY

226-227 Jackson Street
THOMPSON, IOWA

TESTIMONIALS

One of Our First Customers
Algona, Iowa.

Dear Sirs:
We have been using one of your Boring Machines for some time now, and think it is the best thing on the market. It does very nice work and is certainly a money maker for the garage.
Signed, MANN AUTO CO.

Omaha, Neb.

Gentlemen:
The **Storm & O'Hair Boring Machine** has proven a very thorough success, and we have no hesitancy in recommending it to any one in position to handle this class of work.
Signed, AMERICAN AUTOMOBILE COLLEGE, S. A. Pope, Gen. Mgr.

East Liverpool, Ohio, March 17, 1916.

Gentlemen:
Some time ago we purchased one of your Boring Machines, and since receiving it we have rebored several cylinders of various sizes. The jobs have all been very satisfactory.
Signed, FRED W. HECKERTS, Mgr.

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What Is Gibson Service?

IN giving good *service,* an accessory distributor must meet two requirements:

First, he must have *ample stocks.* And, second, he must have the *facilities* for putting any portion of his stocks in your hands *promptly*—whenever you order.

When you realize that accessory dealers from one end of the country to the other—and *even abroad*—favor us with their orders, it will be apparent that Gibson Service is *unusual* service.

And it is! Gibson Service—plus Gibson Quality and Fair-Treatment are responsible for the expansion of our activities beyond the limited territory of a jobber, into the far-reaching scope, comprehensive stocks and complete facilities of a National Distributor.



It will pay you to have our new 1917 catalog—just off the presses. It contains nearly 400 pages—and is virtually, the "key" to the Gibson storehouses. We will gladly send this catalog, without cost, to any legitimate accessory dealer, or garage operator—anywhere. Write today, asking for Catalog G-2.

THE GIBSON COMPANY
INDIANAPOLIS

Motor Car Accessories and Tires
Shop Equipment and Electrical Supplies

"Gibson serves the World"

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Sell More Gas!



Dealers who have made the test know by actual experience that proper equipment makes a wonderful difference in gasoline sales. Ask any of those who have installed

Wayne
Honest Measure Pumps

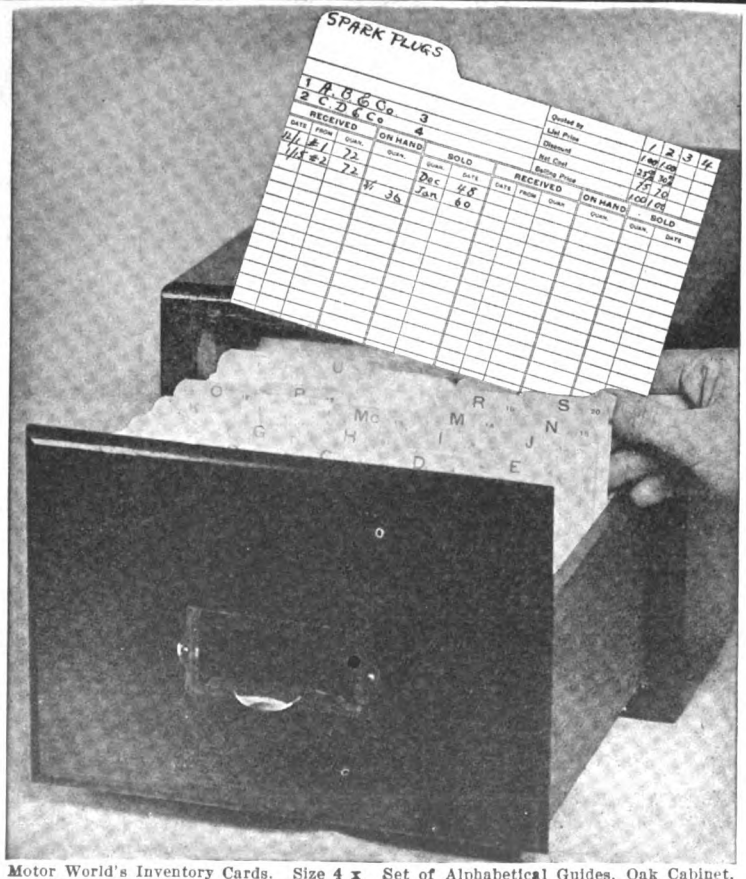
Reports of doubled, trebled and quadrupled gasoline business that will be made in answer to your inquiries may be surprising, but will convince you beyond question that "gas" buyers—motorists—want WAYNE Service.

Interesting literature containing detailed information and some surprising facts and figures will be sent to you upon request. Write now.

Wayne Monarch

The fastest hand pump in the world—throws 20 gallons a minute with continuous forward strokes, no backward cranking. Has big clock dial discharge register, 100,000 gallon meter, perfect filter. All valves solid brass castings, select gray iron. Every part that comes in contact with gasoline is galvanized. Unbreakable, water-proof steel housing is fitted with cylindrical, counter-balanced, telescoping doors, — require no more room open than closed.

WAYNE OIL TANK & PUMP CO., 508 Canal St., Ft. Wayne, Ind.



Motor World's Inventory Cards. Size 4 x 6, $1.00 per 100; $9.00 per 1000. Size 5 x 8, $1.25 per 100; $12.00 per 1000. Outfit 46A, consisting of 500 Cards, 4 x 6. Set of Alphabetical Guides, Oak Cabinet, Complete, $8.75. Outfit 58A, consisting of 500 Cards, 5 x 8, Set of Alphabetical Guides, Oak Cabinet, Complete, $11.00.

You Need This System!

This Inventory and Perpetual Stock Record card system shows plainly, quickly and accurately the condition of your stock of any article on hand—its cost and selling price—how many bought, how many sold, and the balance on hand.

The System is essential to good business methods. NOW is a good time to install it. Will pay for itself speedily, and prove a builder of profits. Act quickly. Send orders to:

Motor World
System Department
239 West 39th St., N. Y. C.

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The Walton *Special*

Supplied for
Hudson
National
Mitchell
Packard



A Turtle-back Speedster, Seating Three

Supplied for
Cadillac
Chandler
Paige-Detroit
or other cars of 123" to 129" wheelbase

A Custom-built Body Produced on a Quantity Basis

Dealers in all parts of the country are finding profit and advertising value in supplying these specials for their customers. The striking beauty of this body on the chassis you sell will create much favorable interest in your car and for your sales agency.

Bodies fitted to chassis in New York, or shipped to you for mounting—the fit guaranteed.

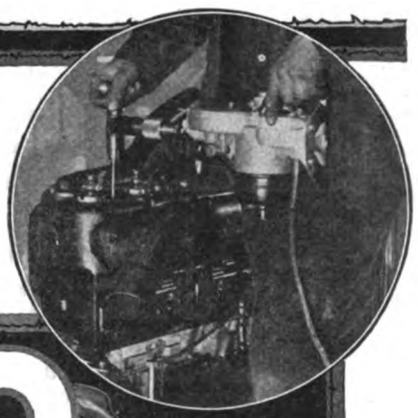
Send for detailed folder and liberal dealer's terms

Walton Body Co., Inc., Exclusive Custom Bodies 110-114 West End Ave. **New York**

Portable Drill—Emery Wheel—Valve Grinder

All in one tool that runs by electricity

Attaches to lamp socket anywhere (D. C. or A. C.)—costs but 1c. an hour for average running—starts, stops and reverses instantly by finger switch on tool—weighs but 12 pounds—taps as well as drills to 3/8-inch in steel—drives and draws screws—grinds valves—sharpens tools. It's the handiest practical tool in the garage or repair shop.



TEMCO Garage outfit



Banishes Hand Labor---Increases Profit

It's a labor saver. It speeds up the work and does better work. It saves the cost of disassembling to take the repair to a fixed machine tool—also saves the cost of setting large machine tools for odd jobs. All of which means greater profit on each job. WRITE FOR FREE CATALOG OR SEE YOUR JOBBER.

The Temco Electric Motor Co.

1306 Sugar Street LEIPSIC, OHIO

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Bear in mind there is a HALLADAY Bumper for every car—a bumper built to every car's protection and appearance requirements.

HALLADAY

The QUALITY Mark of a Bumper

HALLADAY Rear Bumpers are meeting with a record-smashing demand everywhere. They furnish protection against rear-end "run ins" which the driver is unable to anticipate or avoid.

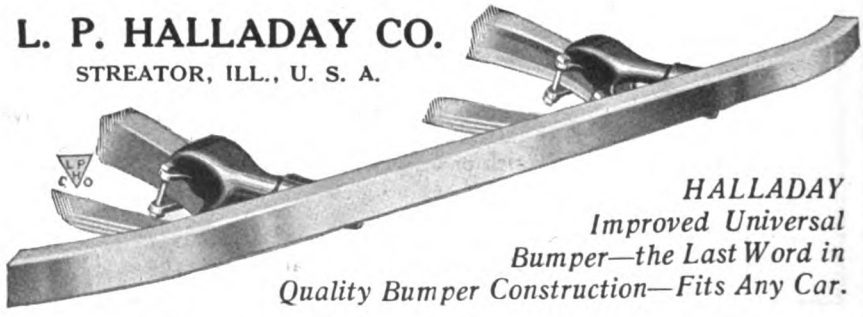
HALLADAY Bumpers are to be had from most good dealers and supply stores. Ask to see the latest models.

Special Bumpers
for
Cadillac, Cole, Chevrolet, Franklin, Ford, Packard, Pathfinder, Saxon "6", Briscoe, Dodge and Others.

Special Rear Bumpers
for
Simplex, Buick, Cadillac, Mitchell, Overland, Saxon

Send for Complete Information

L. P. HALLADAY CO.
STREATOR, ILL., U. S. A.



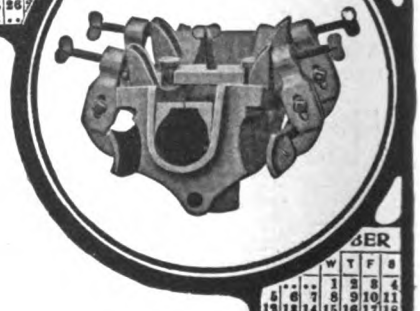
HALLADAY Improved Universal Bumper—the Last Word in Quality Bumper Construction—Fits Any Car.

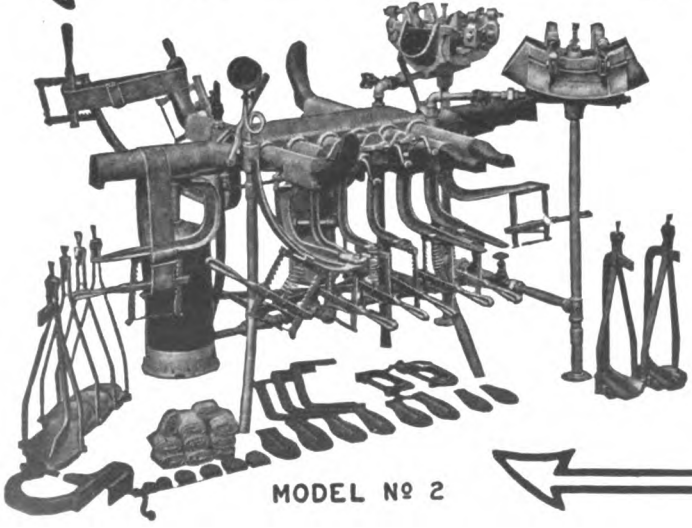
AN ALL YEAR VULCANIZING BUSINESS

The ARTHUR VULCANIZER has advanced vulcanizing from a mere one-season business to an ALL YEAR BUSINESS.

It secures repair work during even the months that were formerly the dull season.

No repair man can afford to close his shop part of the year.





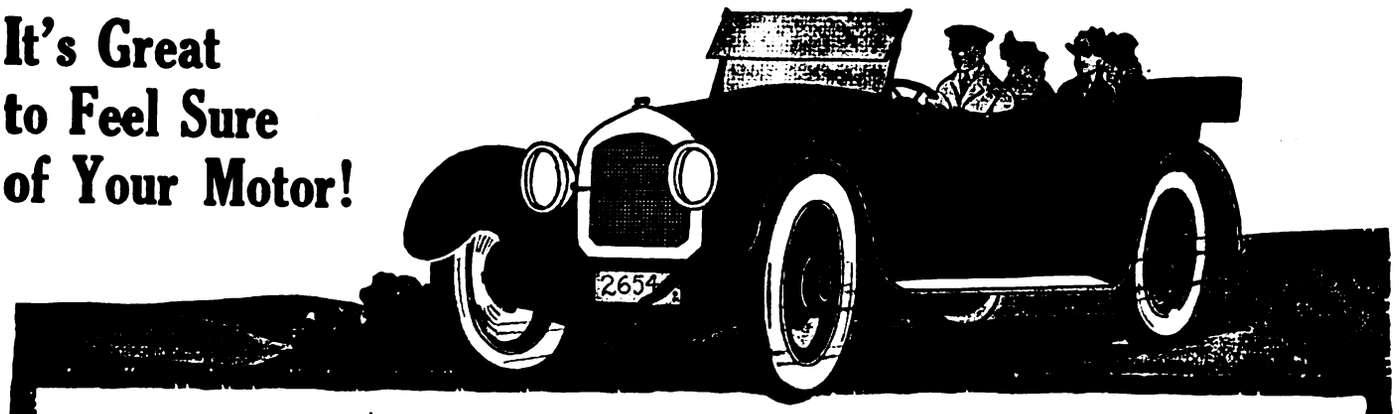
THE ARTHUR MODEL No. 2 FOOTWEAR & TIRE VULCANIZER
is the outfit that has opened the way to success. It handles all kinds of repairs to rubber foot wear and repairs to inner tubes and casings.

Write for full information and catalogue.

THE ARTHUR VULCANIZING MACHINE COMPANY
Griswold St. Warren, Ohio

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It's Great to Feel Sure of Your Motor!



When you KNOW every explosion will give you ALL its power—that's when motoring is solid satisfaction. The

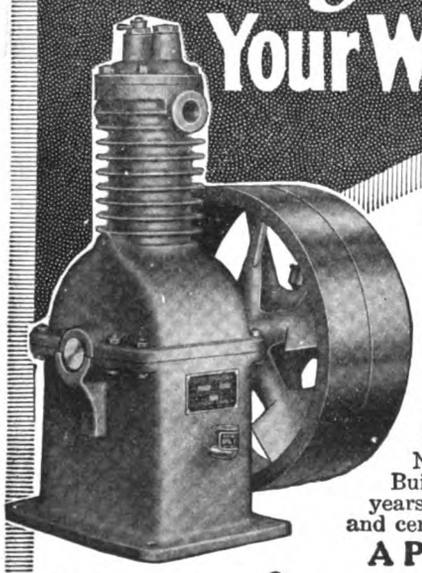
EISEMANN
MAGNETO

makes complete combustion certain. It drives its intense, penetrating spark through the densest compression. Mixture rich or lean, motor racing or barely turning over, you'll be sure of full power if your car is Eisemann equipped!



THE EISEMANN MAGNETO COMPANY
Sales and General Offices, 32-33d St., Brooklyn, N. Y.
Chicago, Ill., 910 So. Michigan Ave.
Detroit, Mich., 802 Woodward Ave.

A Garage Necessity That Draws Trade Your Way



Install a Curtis Air Compressor in your service station—in your garage. Doing so gives you the edge on competition. Draws trade your way. Holds business for you against keen methods of competitors and "cut prices." Why? Because Curtis outfits furnish **Air Free From Oil.** Just what the auto owner is looking for. It means **fewer blowouts, fewer punctures, increased mileage, less repairs.** Saves him many dollars upkeep every month—makes him a friend of yours for life.



CURTIS AIR FREE FROM OIL

10 Combinations of Compressor and Tank Sizes—Any Current

The Curtis Air Compressor is the only Garage Air Compressor so designed that it can't flood the cylinder with more oil than it needs or can use. No danger of forcing oil into the air line. Built by manufacturers who have had 25 years' experience as specialists in this line and certainly know how to make the best and most economical machines of this type. Guaranteed to stand up under severest strains of hard usuage and give good, efficient service at all times and under all conditions.

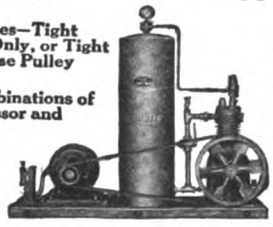
5 Sizes—125 Combinations

Send coupon for full information and attractive prices. Find out about these Trade Getters—Money Makers. Our proposition is one that will appeal to you. Write TODAY. Or, ask your jobber for prices, but insist on the CURTIS.

A Paying Investment—Not An Expense

Five Sizes—Tight Pulley Only, or Tight and Loose Pulley

11 Combinations of Compressor and Tank Sides—Any Current



Besides pulling trade your way—furnishing air **Free From Oil**—note what a Curtis Air Compressor will do for you. You can **Paint** with it—use it for **Cleaning** metal bodies use it on your **Vulcanizer**—use it **Lifting** heavy loads—for **Blowing** dust from cushions and chips and drillings from tools—for **Operating** kerosene cleaners, sand blasts, power presses, pneumatic jacks—for **Pumping** oil, and in numerous other ways. Write for full information.

Curtis Pneumatic Machinery Co.
1546 Kienlen Avenue St. Louis, Mo.
Branch Office: 531-B Hudson Terminal, New York

SEND THIS COUPON

CURTIS PNEUMATIC MACHINERY CO.
1546 Kienlen Ave. St. Louis, Mo.

Gentlemen: Please send me full details regarding Curtis Garage Air Compressor. Also low prices and your proposition.

Name.....
Address.....
Jobber's Name.....
Address.....

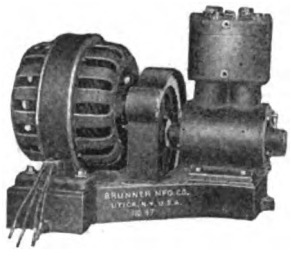
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He finds the garage that is Brunner-ized This Motorist who is Brunner-wised



Yes, Mr. Garageman, and When He Finds the Brunnerized Garage He Also Finds Prompt and Efficient Service. At His Disposal. He Knows When He Sees the Brunner Sign That He Has Found a Garage That Can Give Him Real Service.

He finds a good full length of Brunner "Resistoil" Air Hose, the kind that never leaks until the last particle of the outside covering is worn off by constant use, full to the brim with cool, pure air, and when he claps the automatic tire connection onto his tire valve, he finds just what he always finds at the end of the Brunner air hose, all that he came for and plenty more. He finds the air pure and cool because of the oily vapor which must pass into the tank by reason of the heat of compression and proper lubrication of the compressor, has condensed in the tank, and the pure, cool air separated from the oily vapor has passed out of the other end of the tank through the hose and into his tire.



Do You Believe in signs, Mr. Garageman?

Well, the Brunnerwise Motorist does and so does the Brunnerwise Garageman; so, if you want to do a little good advertising and do a larger and better business this spring, you should cater to the Brunnerwise Motorist. There is always an exchange of pleasant courtesies and cash as well when

The Brunnerwise Motorist Finds the Brunnerized Garage

INVESTIGATE THE BRUNNER AIR COMPRESSOR

WE USE A BRUNNER AIR COMPRESSOR
FREE AIR
FOR YOUR CONVENIENCE

Write for No. 14 Catalogue and Garageman's Handbook on Compressed Air, and the name of the Brunner Jobber who covers your town.

BRUNNER MANUFACTURING COMPANY

Main Office & Plant
Utica, N. Y.

Cincinnati Branch
419 First Natl. Bank Bldg. Cincinnati, O.

the KOT that "knocks the hard spots out of motoring..."

ANYCAR

·AUTO-KOT·

...fits any car...



How many touring trips have been spoiled by the discomforts and inconveniences of the accommodations met with at night? This trouble is completely eliminated by owning your own bed and carrying it with you wherever you go; always ready to be made up in 1 minute and affording all the sleeping comforts of your bed at home.

COMFORT convenience

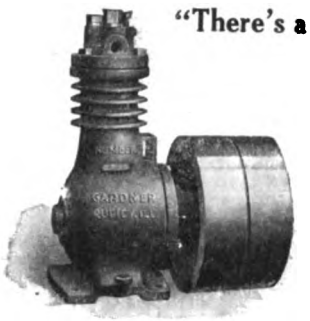
The Kot lies perfectly level; no part of the occupant's body touches the frame. When extended it is 6 ft. long by 2 ft. wide, hinged in the middle and folds to half that length for carrying in the tonneau. Let us send you complete description. We will be glad to fill your order direct if your dealer does not yet handle them. Write us today.

Peoria Auto·Kot Co.

Peoria Dept. 17 Illinois

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Gardner Garage Pumps and Outfits



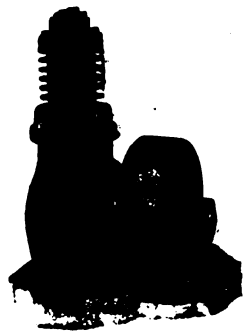
"There's a Gardner for every garage—none too large—none too small"

The Gardner line of garage pumps are simple, economical, efficient machines. They are lubricated by a splash system, so thorough that all interior parts are drenched with oil at each revolution. There are few parts, and no intricate mechanisms. Only attention needed is to occasionally put a supply of oil into crank case.

Durable
Few Parts
High Speed
No Oil or grease cups
Dependable
Dust and Dirt proof
Self oiled
Occupies small floor space

Cylinder and crank case cast separately.

Booklet AC-14 is the very latest on garage pumping equipment. Ask for it today.



Gardner "Gee Gee" Air Compressor

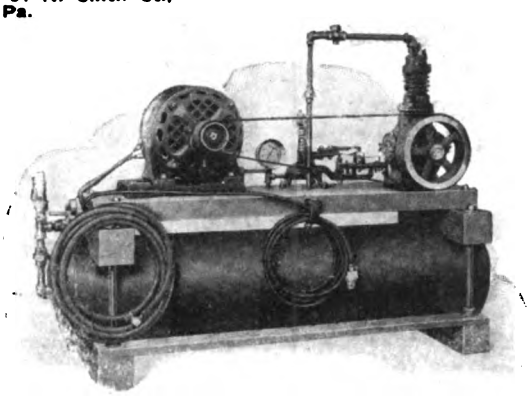
THE GARDNER GOVERNOR COMPANY, 144 Williamson St. Quincy, Illinois

BRANCH OFFICES:

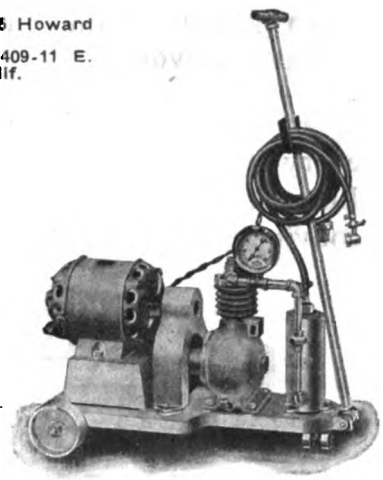
The Gardner Governor Company, 1317 Fisher Bldg., 343 S. Dearborn St., Chicago, Ill.
The Gardner Governor Company, 302 Singer Bldg., 149 Broadway, New York, N. Y.
T. T. Burchfield Company, 54 N. Sixth St., Philadelphia, Pa.
Rix Compressed Air & Drill Co., 506 Howard St., San Francisco, Calif.
Rix Compressed Air & Drill Co., 409-11 E. Third St., Los Angeles, Calif.



Gardner Air Wagon



Gardner Automatic Stationary Free Air Unit



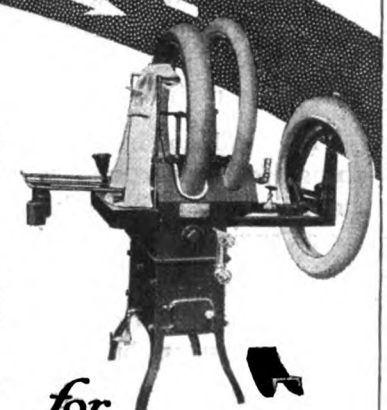
Gardner "Midget" Portable Pumping Unit

Send Coupon for FREE BOOK

YOU NEVER SAW THIS BEFORE

A TIRE-RE-PAIR OUTFIT *with* SPECIFICATIONS BELOW

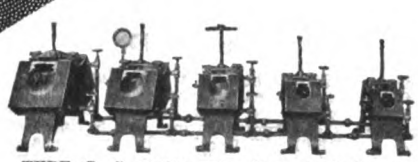
TIP-TOP OF AKRON TI-RE-PAIR OUTFIT



This is the first time that a complete outfit with the range of adaptability and the high quality shown by the specifications below has ever been sold for the price of $125.

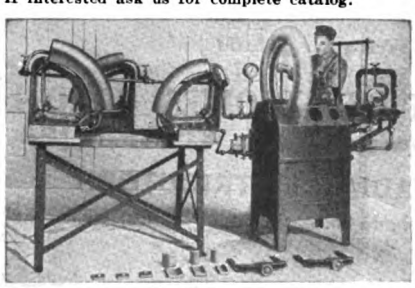
Specifications

Outfit consists of two cavities, 2½-3 and 4½-5. Reducing shell for the 3½-4. Inside patch, 3½-4, on which practically all sizes of inside work can be done. 2½-3, 3½-4, 4½-5 bead molds in either Q.D. or Straight Side furnished with outfit. Made in one-fifth circle.



TYPE C—5 cavity vulcanizer piped for separate boiler.

WE MAKE A COMPLETE LINE OF TIRE REPAIR EQUIPMENT.
and are in position to furnish outfits to meet various requirements of service, output and range of adaptability at prices from $50.00 to $225.00. If interested ask us for complete catalog.



TYPE B—3 cavity vulcanizer with self-contained boiler inside patch vulcanizing attachment and 8 in. x 20 in. Tube Plate.

Get Into the Tire Repair Business This Spring—There's Big Money in It

Auto Tire Repairing is the best money making business to-day for the man with little capital. Millions of autos in use and the number increasing by thousands every twenty-four hours—insure a greater demand for tire repairing than repair shops can begin to take care of.

for **$125.00**

START NOW—SEND FOR FREE BOOKLET

Start now, while the best locations are open. Write today for free booklet, "How I Would Conduct a Tire Repair Business—By an Old Tire Repair Man."

The Akron Rubber Mold & Machine Co.

925 Sweitzer Ave. Akron, Ohio

Dealers Wanted Everywhere

M.W.

Please send me further particulars regarding your Tire Repair Equipment and copy of your Free Book.

Name .....
Address.....

When writing advertisers please mention Motor World—It identifies you

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Talking 100% to Fifteen Million

WE are going to prove to you **why** you should sell Dixon's Graphite Automobile Lubricants. We are going to demonstrate to your customers **why** they should use them. Their use means **more power** to your customers, **better business** to you.

Our force of specialty men are going everywhere with the message of 100% Lubrication. Wherever they go they convince dealers and motorists that

DIXON'S GRAPHITE Automobile LUBRICANTS

are better lubricants. Demonstration **proves** it every time.

This year we are going to back-up the efforts of our sales force with a smashing campaign of newspaper advertising that will reach 15,000,000 homes. It will blanket every automobile center in the country.

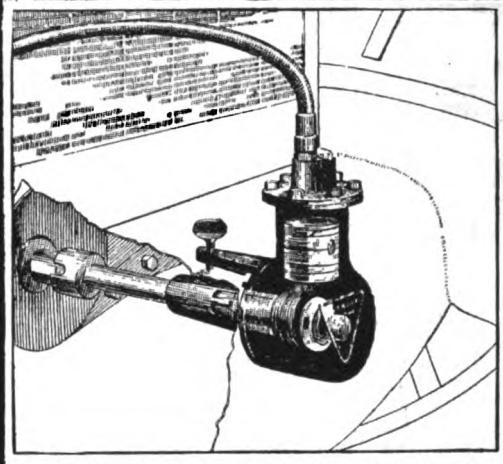
This will not be a campaign with one loud bang like a punctured "shoe." We are going to keep right at it, week after week, as steadily as an engine that never "skips."

This message of 100% Lubrication will reach a maximum of car owners and owners-to-be in a year when automobile sales will break all records.

Our salesmen prepare the ground. Our advertising sows the seeds of heavy sales of Dixon's —the 100% Lubricant. Be ready to garner your share of the business and cash in on our campaign of lubrication education.

Write Dept. 111 *for Dixon's Dealers' Deal*

Joseph Dixon Crucible Co.
Jersey City, N. J.
ESTABLISHED 1827



GEARLESS DETROIT CRANK-SHAFT TIRE PUMP

Pat. Aug. 25, 1915

Finds Its Customers Among Owners of 960,000 Cars Between $800 and $1,300

—and consequently continues to give complete and satisfactory service as long as users demand.
Sells fast at a popular price—

On and Off in a Jiffy Without Tools or Adjustments of Any Kind

The simplest, easiest power tire pump to attach and operate. Fits on at the end of the motor crank shaft, in 30 seconds or less. The DETROIT Gearless Tire Pump is—

Not a Rubber Diaphragm Device

—the tremendous majority of them in a class that can and will afford $10 for a motor driven tire pump.
Thousands of these owners are going to buy DETROIT Gearless Crank-Shaft Tire Pumps during the Spring and Summer—because the DETROIT Gearless fits every one of their cars, some of which are specially designed by factory engineers to accommodate it.

$10 Complete

—with discounts for dealers that pay. NOW READY for Briscoe, Dodge, Chandler, Hudson, Overland, Reo, Stearns, Saxon 1916 and Studebaker cars.

Write for details today

DETROIT ACCESSORIES CORP'N.
520 Hillger Avenue **Detroit, Mich.**

CANADIAN DISTRIBUTORS
Walkerville Hardware Co. **Walkerville, Ont.**

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KEYSTONE SHOCK ABSORBER

MAKESHIFTS Hurt Business

There are shock absorbers made simply to sell, not to give long, satisfying service. No jobber or dealer will deliberately drive trade away. But many do lose customers by selling them goods that have no lasting qualities. Shock absorbers on automobiles are subjected to so many violent strains that, to give real service, they must be made of toughest metals and stoutest construction.

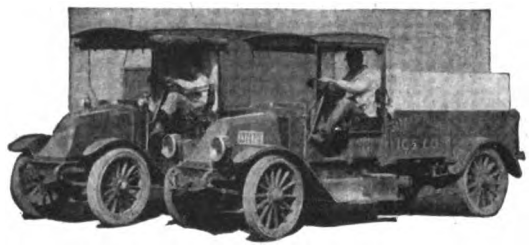
KEYSTONE SHOCK ABSORBERS

are built of drop forgings, high carbon and vanadium steel, have long bearings, powerful springs and are so constructed there can be no side-pull with its ruinous binding and wearing of parts. This invariable central pull assures constant easy riding, saving of springs and motor. No car owner ever brought back a set of Keystone shock absorbers. No dealer ever had a complaint because of breakage or wearing of parts. Per set, $20.00.

Jobbers and dealers in high quality accessories please write us.

Steel City Electric Co.
1207-1219 Columbus Ave. Pittsburgh, Pa.





Our Own Trucks Surprise Us

Some INTERNATIONAL Registrations

The **International Motor Truck** leads all other trucks in operation in Ohio, Wisconsin, Michigan, Tennessee and Oklahoma, and in the cities of Chicago and St. Louis. In Michigan, for instance, the home of the motor truck, the **International** leads with 324 trucks as compared with 259 for the nearest competitor. Further than in these states and cities, the registration has not appeared. These are new figures, sent out by the separate states, and they show **International** popularity that surprises even us.

No more compelling argument than these facts and the successful operation of these thousands of trucks could be cited. The big factor in the huge and rapidly growing sales of **International** trucks is the record of increased profits, reduced hauling costs, and economical operation of **Internationals** in daily service in every line of business having loads to haul. Consider these

New Low-Price INTERNATIONALS

Model H—1500 lbs. capacity, internal gear drive (chassis)..... $1225

Model F—2000 lbs. capacity, internal gear drive (chassis)..... $1500

Prices cash f.o.b. factory.

Eighty-nine company branches and thousands of local distributors cater to the needs of **International** owners. Up-to-the-minute service is always at your hand. Write to the address below for attractive folders with all the details and full information. You owe it to the prosperity of your future to know more about the **International** motor trucks. **Now** is the best time to write.

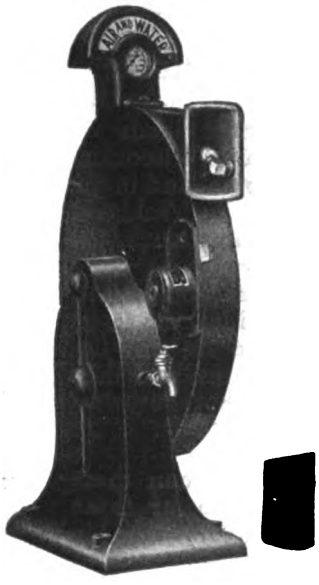
INTERNATIONAL HARVESTER COMPANY OF AMERICA

(Incorporated)

155 Harvester Building, Chicago, U. S. A.

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All Hours of the Day and Night
ECO Prepayment Automatic Air Station
Makes Money for You



Whenever an air customer drives up to your garage—at rush hours, when you haven't time to take care of him, or in the middle of the night—your ECO Prepayment Automatic Air Station waits on him courteously, quickly, efficiently, and collects its 5c. fee. Costs the customer less than the tip he would give the Free Air attendant. Keeps him in better humor. Brings him back for more air, supplies, accessories, and often for a new car.

Let Yours Pay for Itself by Our Special Plan

For a limited time we ship to customers entitled to credit, if they desire, an ECO Air Station on the basis of $25 cash with order, $25 in 30 days, and $25 in 60 days, while the ECO Station collects its own cost.

Pays for itself many times over. Electric Light illuminates tank pressure gauge at night, and reflects, showing owner's advertisement. Dispenses water free. Air hose, with automatic cut-off valve, winds inside the ECO, clean, safe and protected.

Order from your jobber or

Electric Appliance Company

Chicago San Francisco Dallas New Orleans

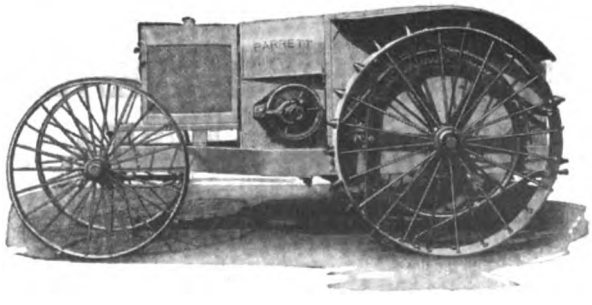
PARRETT TRACTOR
"SPEAKS FOR ITSELF"
ONE MAN ALL PURPOSE

Tractors and Automobiles
Sell side by side to the farmer

Using the same good judgment in selecting the tractor to sell that you use in selecting the automobile—you will choose the Parrett. A successful tractor manufactured by a reliable company.

For full particulars address

Parrett Tractor Company
426-A Fisher Bldg., Chicago, Ill.



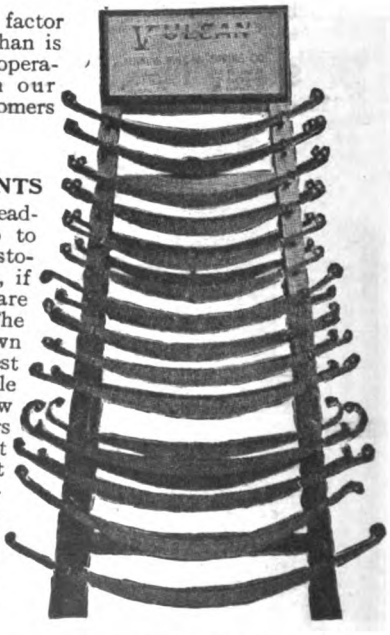
CO-OPERATION

Even the Splendid Quality of our Springs—

is no stronger a factor in our success than is the hearty co-operation between our dealers, our customers and ourselves.

SPRING REPLACEMENTS

—are going on steadily. They help to make new customers for dealers, if the new springs are good ones. The stand here shown is one of the best methods possible to attract new spring purchasers You can get it free, and with it the quickest deliveries and most thoughtful, helpful co-operation we know how to give. Write us about it.



JENKINS VULCAN SPRING COMPANY
1402 Chestnut St., St. Louis, Mo.
708 Commerce St. Fort Worth, Tex.
29 Caldwell St Sumter, S C.

VULCAN QUALITY

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SOLDER

(ready to use)



Kester Crystal-Core Solder

is a seamless tube of wire solder. The core is a soldering flux that flows as solder is used. CRYSTAL-CORE is especially adapted for AUTOMOBILE work. Tube is a series of cells. Each cell is filled with the proper amount of flux. Kester Crystal-Core Wire Solder is cheaper to use than solid wire or bar solder. No time is lost in preparing or applying the flux or acid.

Cleaner, Neater, Quicker Results

Use it for battery terminals, gasoline pipe and tank joints. electric light connections, radiator leaks, cracked fenders, speedometer flexible shaft, spark plug terminals and general garage use. Sold in coils of 1 pound. and on spools of 1, 5 or 10 pounds.



Order Today From Your Jobber

Manufactured by

CHICAGO SOLDER CO.
218 N. Union Ave., Chicago

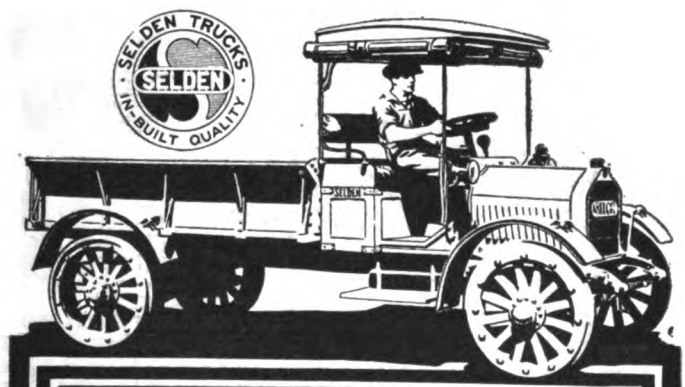


TERRA COTTA GARAGE FRONTS

A BRIGHT, clean, neat appearing garage front of Midland terra cotta is a successful business booster — it never requires any paint or repairs — it is fireproof and never deteriorates. Booklet of ideas—**free.**

MIDLAND TERRA COTTA CO.
1515 Lumber Exchange, Chicago





NEVER before was greater truck value offered for the money than the Selden Line of "IN-BUILT QUALITY" Trucks offers. These big, powerful ¾-Ton, 1-Ton, 2-Ton, 3½-Ton and 5-Ton

Selden Trucks

render the kind of service that makes it profitable to haul by motor truck—the kind that pays dividends for years after the investment.

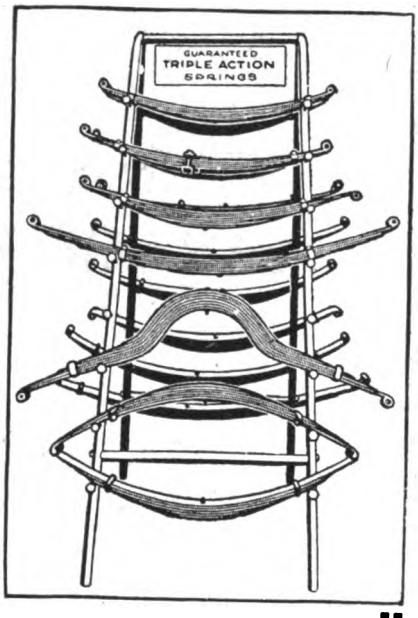
Never before was a bigger opportunity offered to dealers than the Selden Line offers the dealers today. Write for the new Selden Sales Proposition quick—for some day soon it will be too late.

Selden Truck Sales Co.
Rochester, N. Y., U. S. A.

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Clinch the Spring Business in Your Territory and Make Big Money!

Every motorist is looking for real service. He abhors delays of two or three weeks in sending a spring back to the factory for repairs.



We put you in a position to give him quick, daily, even hourly, service. He *is* pleased. He comes to you for all his repair work and most of his accessory purchases.

This is the experience of over *four thousand dealers using our service plan.*

By using our assistance you have increased every branch of your business. You open accounts with good people, who have been patrons of other garages not able to handle spring work.

Announce Yourself As a Triple Action Spring Service Station

Put in a small stock of springs for every-day orders. Not much money needed. We have every kind of spring for every make of car since 1903, regardless of whether the manufacturer is out of business or not.

If you don't happen to have in stock just the type of spring needed, wire us. We ship the same day always, even if the spring you require has to be made specially. We carry over 40,000 springs in stock ready for shipment.

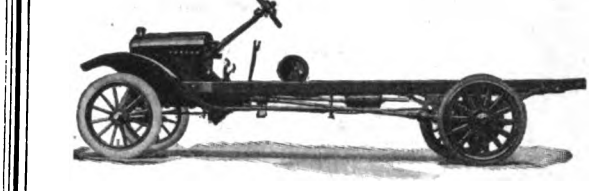


There is more profit in the *Triple Action Springs* than in any other branch of the automobile accessory business. Because of the large volume of business we do, we can sell you springs at prices that put competitors out of the running, and still you make big profits.

Send for our catalog listing types, dimensions and sizes of springs for every car. We furnish you free of charge a rack for samples like illustration.

Get ready NOW before the season opens.

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E. 28th St., Chicago, Ill.
The Home of the Johnson Shock Absorber



KELLEY TRUCK UNIT

Internal gear shaft drive. Makes the *best* 1—1½ ton Ford-converted truck. *127 inch* wheel base. 65,000 mile guarantee on axle.

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KELLEY CONVERTIBLE AUTO-TRUCK CO.
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Cleans Refinishes
Polishes & Preserves the Body of Your Car from Bumper to Tail Lamp

MIRRO-LIKE AUTO-POLISH

AN AUTO-BODY POLISH FOR EVERYBODY'S AUTO

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MIRRO-LIKE

Enough to polish any car, and to PROVE to you what a splendid opportunity this gives you on REPEAT sales.

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There MUST be a reason—the free sample will show you. Send your request NOW.

MIRRO-LIKE MFG. CO.
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STEVENS & CO. NEW YORK



A Pump Connection
Is No Better Than Its Washer

Look for the "Red Core." The unusual quality of Acorn Rubber Washers gives you longer and better service than ordinary washers. We make these washers of a high quality to back the quality of our Acorn Pump Connections.
Price, 25c. doz.

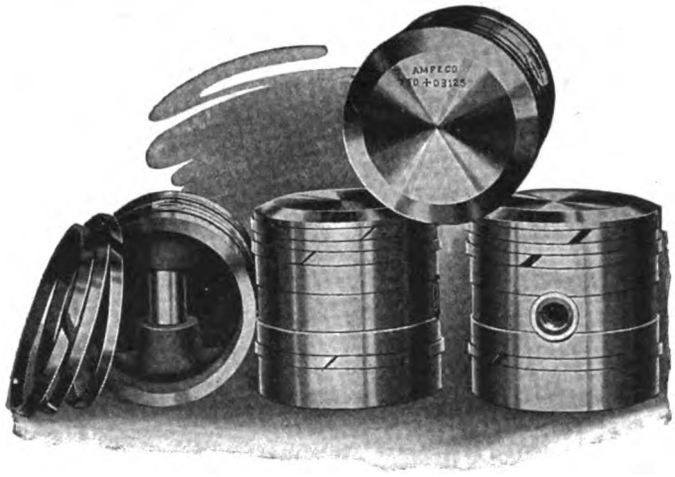
Acorn Pump Connections are the original "push on" pump connection. They fit any valve and cannot blow off. They are very much more convenient than screw couplings. Rubbers last for several months and are easily replaced.
Price, each, 20c.

DISCOUNTS from your Jobber

STEVENS & CO., 375 Broadway, New York City

Automobile Parts & Accessories

"AMPECO" PRODUCTS



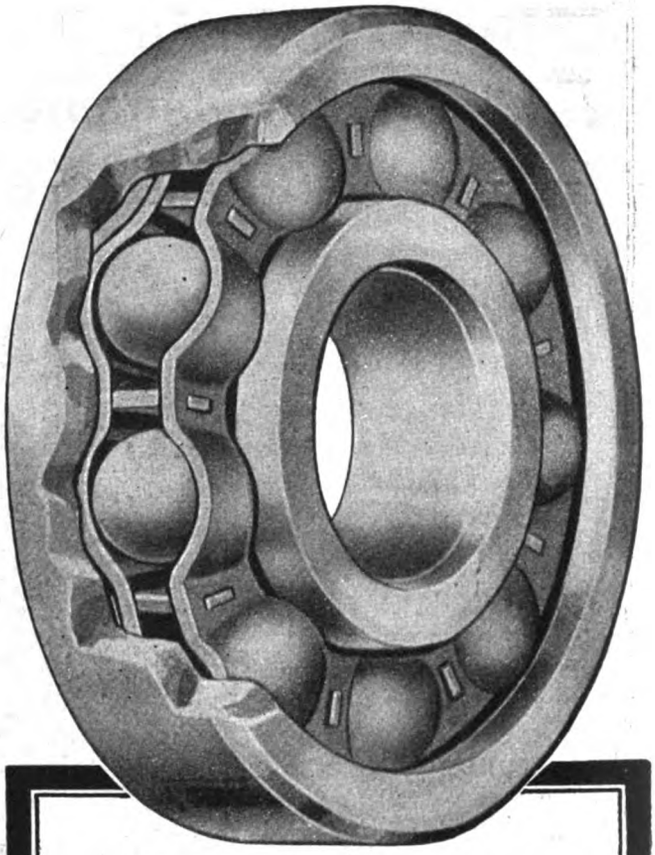
"AMPECO" Pistons Are LIGHT
—the average weight is 2⅞ lbs.
—they will not vary one ounce in weight

"AMPECO" Pistons Are ROUND
—are mechanically perfect
—are true to measurements

A Ford motor with four pistons of the **same** weight, and of light weight, will make a much smoother running motor, overcome **main bearing troubles,** give **increased power,** and increased speed.

Buy "Ampeco" Pistons and Get the Best

American Machine Products Co.
Marshalltown, Iowa



LONG LIFE

THE life of a ball bearing is as dependent on accuracy of fitment as on the structural properties of the steel.

On some parts one ten-thousandth of an inch deviation plus or minus is the difference between acceptance and rejection by New Departure inspectors.

The New Departure method of finishing ball races is an exclusive process which produces a smoothness of surface not found in other makes of bearings.

The fact that New Departure Ball Bearings have made good in the most trying conditions of service shows conclusively that they are properly designed and properly made.

THE NEW DEPARTURE MFG. CO.
Conrad Patent Licensee
Bristol, Connecticut

NEW DEPARTURE BALL BEARINGS

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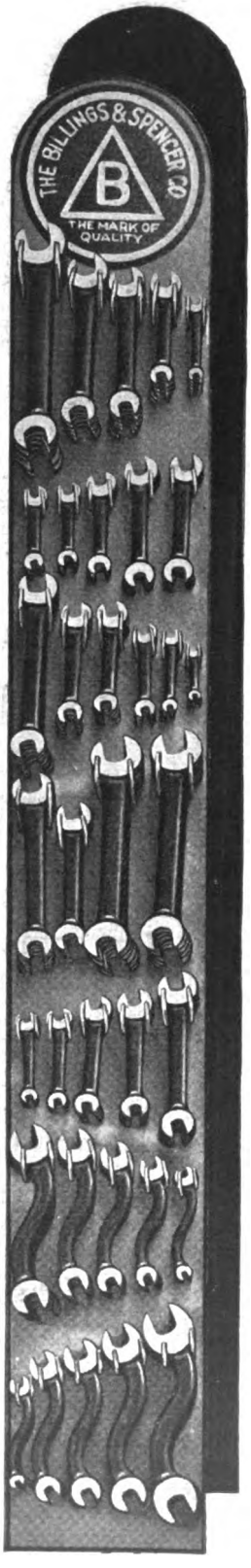
For Your Convenience In Over 4,000 Stores

THE wrench board here illustrated is for the convenience of the purchaser as well as the dealer.

The buyer no longer has to wait, the dealer no longer to search endless drawers and boxes. The wrench needed is there before you, quickly and easily located. And the triangle trademark found on each wrench is your assurance of a perfect article.

THE dropforged tools and parts manufactured by the Billings and Spencer Company have this highest warranty; they are made by the pioneers in the drop-forging industry—a concern that for more than half a century has devoted its energies to raising the standard of its production.

EVERY wrench stamped with the Billings & Spencer Triangle trademark is unconditionally guaranteed.



THE BILLINGS & SPENCER CO.
HARTFORD, CONN. U.S.A.

TORIT 6300

If You Repair Automobiles

investigate the TORIT torch

Efficient and Reliable



A TORIT Welder will prove a Money Maker and a Business Getter

Ask for Catalog "M"

Manufactured by

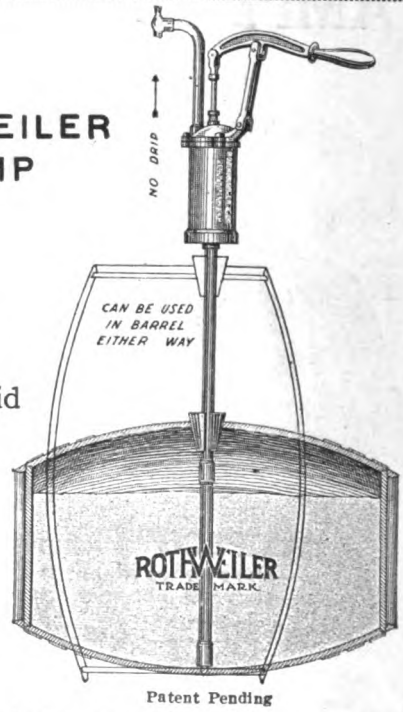
The Evleth-Lindsay Co.

St. Paul, Minn.

ROTHWEILER PUMP

Price $6.50

Delivery Charges Paid



Patent Pending

The above method is the easiest, quickest, cleanest and cheapest way of getting all the oil, gasolene, turpentine, light paint, etc., out of a wooden barrel or iron drum.

ROTHWEILER & CO., SEATTLE, WN.

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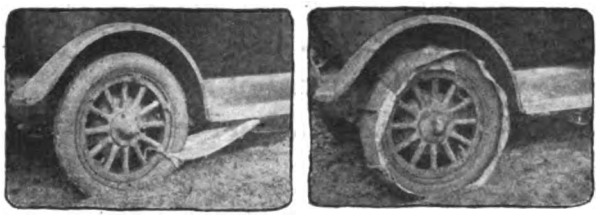
Haberstick's "WON'T LET YOU STICK"

makes its own Road-Puts Itself On

When you are in mud, sand, snow, ice, wet grass, etc. If, instead of heating up your engine and your tires and your temper—instead of spoiling your clothes and splattering up your car—and finally paying a team of horses $5 to pull you out, if you can go to your tool box and take out the "Won't Let You Stick"; slip the metal container into the cleats under your running board; tie the end ropes around the rim; start your engine—unwrapping a dry canvas road with heavy rope insertions at regular intervals—and see your wheels take hold and your car come out like a shot—you're lucky. It costs you only $6. Dealers write. Or postpaid on receipt of price.

Let Your Engine Do the Work — No Jack Necessary —

AUTO ACCESSORIES COMPANY
WHEELING W.VA.



Get the Genuine



Sold Only in the Original Package Illustrated Above

For Your OWN Satisfaction

Order the original, the genuine VAN SICKLEN Headlight Dimmer and Intensifier for your Ford Car. Install it and you GET every result that is promised—a "DIMMER," an "INTENSE" or a "NORMAL" Driving Light—at any speed of the engine.

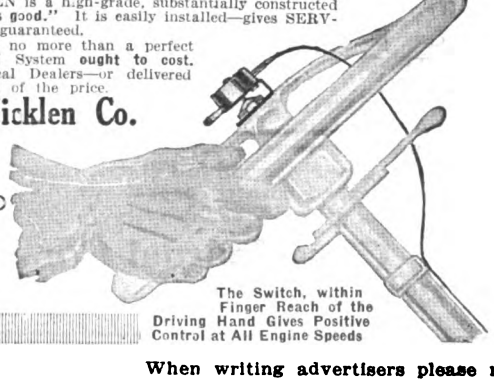
The VAN SICKLEN is a high-grade, substantially constructed device. It "makes good." It is easily installed—gives SERVICE and is fully guaranteed.

The genuine costs no more than a perfect Headlight Control System ought to cost. $4.00 at your local Dealers—or delivered prepaid on receipt of the price.

The Van Sicklen Co.

Makers of the Van Sicklen Speedmeter

15 CHICAGO STREET, ELGIN, ILLINOIS



The Switch, within Finger Reach of the Driving Hand Gives Positive Control at All Engine Speeds

Merely as a concession to a popular notion that all tires must be "guaranteed,"

Kelly-Springfield Tires

are warranted for 5,000, 6,000 and 7,500 miles, according to type and size. But Kellys do better than this as a rule—and they do it on the road, where the mileage should be—not over the adjustment counter.

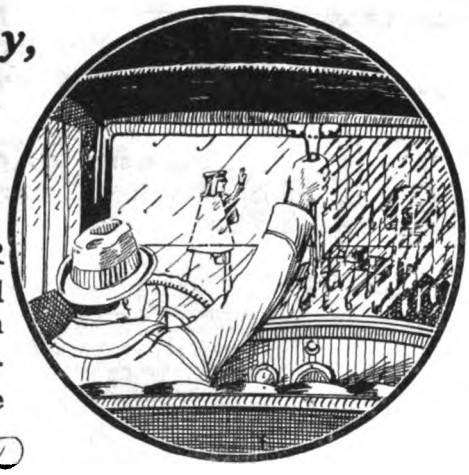
Kelly-Springfield Tire Co.
Executive Offices
Broadway at 57th Street
New York
General Sales Department
1900 Euclid Avenue
Cleveland, O.

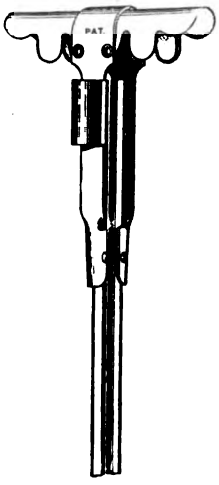


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In Rainy, Snowy, Foggy, Misty

WEATHER a Windshield Cleaner is an Absolute NECESSITY. The





'Clear-View' Windshield Cleaner

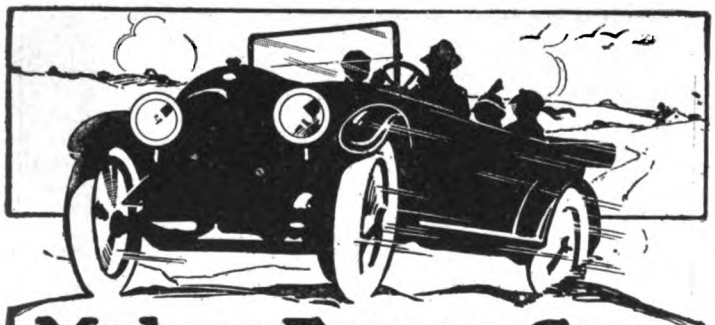
is mechanically correct; it's all you can expect from an article of this kind. Cleans ***both*** sides of glass clear across, easily operated while driving. It's neat looking, nickel-plated, copperized first so the *rust* won't get it. Wiping-bars made from aluminum.

DEALERS
Your jobber stocks them **$1.50**

Windshield Cleaner Device Co.
1311 So. Figueroa St. Los Angeles, Cal.

Pacific Coast Representation

Automobile man of broad and successful experience desires association as Pacific Coast representative with a company manufacturing high quality motor cars. Will guarantee to qualify if opportunity is of right kind and size. Well and favorably known throughout the Pacific Coast territory. Address:
"A. B. C.," care of M. Perry,
2147 Lake St., San Francisco.



Makes Every Car Come Across With-

20% More Speed—20% More Power—Easier Starting—Better Acceleration—25% Fuel Saving

—that's why the Oxygenerator induces car owners to come across quick with the purchase price—makes them eager buyers. The Oxygenerator is exactly the device all motordom has long been keenly anxious to *obtain*. An appliance that actually *eliminates* carbon. Positively the only known method of promoting 100% engine efficiency. Miraculous as results may seem—

THE OXYGENERATOR

is simplicity itself in construction. Consists of water container and copper coil. Container attaches to exhaust manifold. Digests water and carries super-heated steam, through copper coil wrapped around exhaust manifold, into cylinders. Vapor quickly permeates every atom of power mixture. Blasts into most digestible shape all usable fuel. And *burns carbon*—does away with it completely. Fool-proof. Wear-proof. Outlives car. Costs nothing to operate. No upkeep expense. Retail price $10.

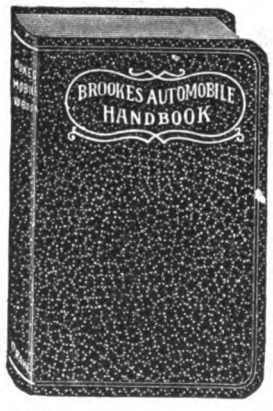
Satisfaction guaranteed or money back. Easily installed on any car—becomes *permanent* fixture. No adjustments after installation. Order one for *your* car. Give name, model and year. Descriptive matter and proof of its superiority FREE upon request.



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Special proposition and big discount to dealers—write today—mention jobber's name.

The Most Practical Book on the Automobile Ever Published



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(NEW EDITION)

For the owner, repairman, garages, automobile designers and dealers. A complete encyclopedia including every subject in relation to the automobile.

An idea of the extent of some of the main divisions may be formed from an inspection of Starting and Lighting (91 pages), Carburetor Instructions (52 pages), Transmission Systems (38 pages), Ignition (126 pages), and Engines (46 pages).

715 pages. 335 Illustrations and 12 Tables. Printed on Plate Paper.

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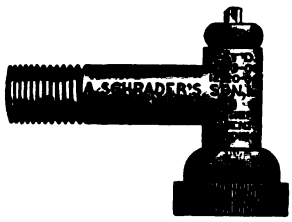
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Class Journal Company
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Tire Pumping And Air Testing Made Easy.



MOST of your customers know that it is death to tires to run them insufficiently inflated. A great many of them however, neglect to test their air pressure because this operation until now has been tedious and time consuming.

You will be doing them a favor if you will bring to their attention the fact that with a **SCHRADER UNIVERSAL PUMP CONNECTION** this hitherto complicated operation has become both easy and agreeable.

The **SCHRADER UNIVERSAL PUMP CONNECTION** retails in the U. S. A. for thirty-five cents and you should have no difficulty whatever in selling as many of them as you have customers. It will also help you to sell gauges to those of your customers who until now have been deterred from testing their air pressure by thought of the labor and loss of time involved.

A. SCHRADER'S SON, INC.

783-803 Atlantic Ave. Brooklyn, N. Y.

The EDGERTON MOTOR TESTER

Positively Eliminates the Uncertainties of Guesswork in Locating Motor Troubles

It is a Tool that Sells on Sight because it

- Locates instantly missing explosions
- Weak cylinders
- Knocking bearings
- Leaking valves or pistons
- Faulty valve or ignition timing
- Makes carburetor adjustments easier
- Diagnoses the exact working condition of each cylinder separately
- Shows if motor is adjusted properly for running conditions
- Burns carbon off the exhaust valve seats in a few minutes.
- It is the greatest time and labor saving device of its kind

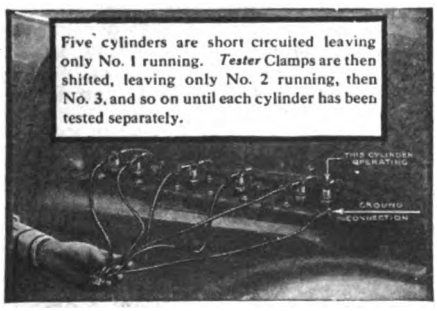
Made in two models for any number of cylinders; the twelve cylinder can be used for any motor of twelve cylinders or less and the same is true of the other sizes.

Everyone from the car owner to the expert factory adjuster needs it and should get it.

Write for Literature or Order Today.

R. G. EDGERTON & CO.

SUFFOLK, VIRGINIA



Patents Pending

PRICES

Special

4 cyl...	$2.00
6 cyl...	2.50
8 cyl...	3.25
12 cyl...	4.75

De Luxe

4 or 6 cyl...	$5.00
8 cyl...	6.75
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Specify number of cylinders and model desired when ordering. Both models give same results, but the De Luxe is made heavier and will stand more abuse.

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Saxon	Knox	McFarlan	American-La France
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Pilot	Stearns-Knight	Sandow Truck	Delco-Light
Jackson	Wilcox Trux	Sterling Truck	Phianna
Velie	Diamond T	Netco Truck	Fostoria
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Sold Everywhere

Have You This Plug On Your Car?

Accept No Plug Unless A C is Burnt Into the Porcelain

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For every make and model of motor-car carrying an electric starting system. Replacements on cars no longer manufactured can be had promptly.

Detroit Battery Co.
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Quality in Motor Trucks

It has been our endeavor to create a commercial vehicle that would excel first of all in the quality of the material used, and, second, in the economy of its operation.

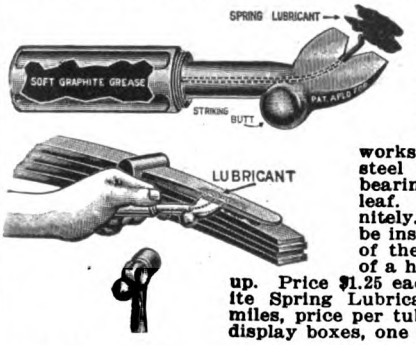
Our reputation for producing the most lasting truck is recognized by our many users.

We offer for your convenience, the following sizes:

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TOMAHAWK SPRING LUBRICATOR



Inject Graphite Lubricant between the leaves of the springs and get 100% easier riding from your car, without squeaks and danger of breaking springs. The Graphite works into the pores of the steel and makes a polished bearing between each spring leaf. It lubricates indefinitely. The Tomahawk can be inserted with the pressure of the fingers or a light tap of a hammer, if car is jacked up. Price $1.25 each. Tomahawk Graphite Spring Lubricant sufficient for 3,000 miles, price per tube $0.50, also packed in display boxes, one dozen each.

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Give Them a Square Deal

It Pays—Always

When a motorist SEES what he pays for there is no room for argument—and he quits the garage where he is likely to get short measure.

Use a VISIBLE Pump

Manufactured by

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CONTRACTOR-EXPANDER

Clamp tool on rim—twist buckle to expand or contract—tire quickly removed, easily replaced. No changing of clamps. A one-operation rim tool.



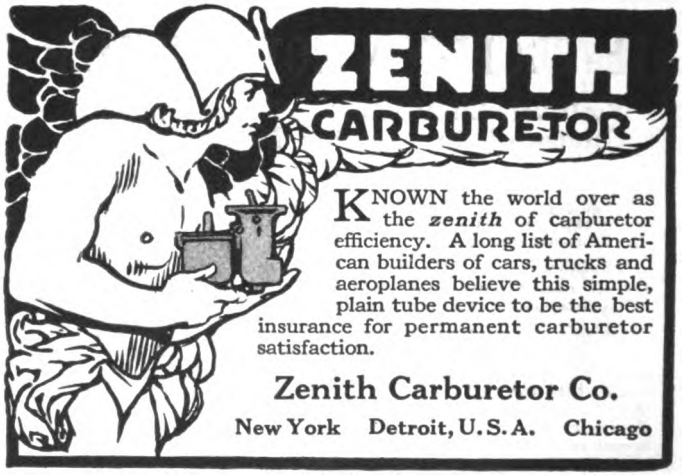
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With a blow torch.

You can make broken and cracked aluminum parts as good as new, by using

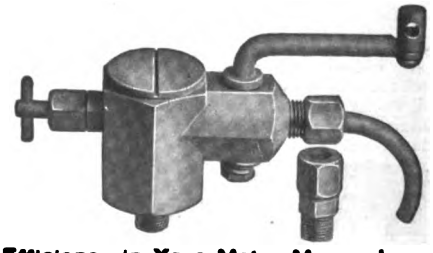
STEWART ALUMINUM COMPOUND

Positively guaranteed to do the work as well as an oxy-acetylene torch and at a cost that permits no comparison.
Any garage mechanic can make perfect welds with Stewart Aluminum Compound and a blow torch, using an old case knife to V-out and clean the break.
This may sound too good to be true—but a trial will convince you. Remember it's guaranteed. You get your money back if it does not do what we say.
Write for a 75 cent sample today (postpaid).
Price, pound lots—$2.50.
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REMOVES CARBON



PRICE $6.00 EACH

Greater Efficiency in Your Motor Means Longer Life, Less Overheating, More Mileage.

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Carry a Martinkit in your car and be prepared to treat cuts, bruises, burns and even bad wounds accidentally received.
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MARTINKIT FIRST AID TRADE MARK

Martin Auto Accessories Corporation
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NEWS BULLETIN

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A great improvement in Ford Starters is made in the new Disco Two Unit System for starting and lighting, made by the Disco Electric Starter Corporation, Detroit.

In place of the button on the floor, a starting lever, and also an ammeter and lighting buttons, are mounted on the steering post.

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TRANSMISSIONS
SYRACUSE, N.Y.
DIFFERENTIALS
BROWN-LIPE CHAPIN CO

Backus Utility Auto Lock

Protects Car and Contents



The Backus Lock with its mechanical fingers prevents the theft of robes, garments, suitcases and articles left in the car.

Locks in any position—indestructible. Every lock has different key combinations. Our liberal trade discount yields a good profit. Send for literature.

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Smethport, Pa.

OHIO TRAILERS

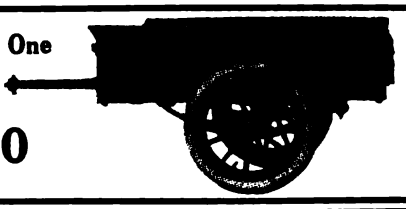
WHY YOU SHOULD SELL TRAILERS

Because their popularity is growing. Because they are *the new idea* in the commercial car field providing for more elastic carrying capacity and permitting pleasure cars to be used for deliveries, etc., with a minimum of depreciation.
Because they are of incalculable value to the farmer, to contractors and hundreds of others who have occasional loads to carry.
Watch the trailer idea grow, but put yourself in a position to grow with it. Don't wait until completion forces you into the field. Break the ground yourself.

Write us today.

The Ohio Trailer Company, Cleveland, Ohio

Model Forty One



$85.00



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Carbon, the greatest detriment to engine efficiency, may be minimized by the proper choice of lubricants. For instance—

SUPREME AUTO OIL

being manufactured from Asphalt Base Crude, leaves less carbon, as it contains no paraffine to gum and stick. At the same time it affords perfect lubrication.

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The Largest Independent Refining Company in the World
GENERAL SALES OFFICES: PITTSBURGH, PA.
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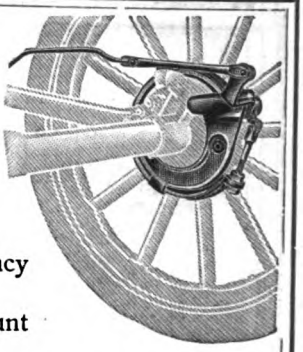
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The Six of Advanced Construction

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Dealers are Making Big Money Selling



our "Improved Emergency Brake" for Fords.

Write at once for big discount and original selling plan.

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Miles Cheaper

Users Report Records of

Settle the MILEAGE PROBLEM— Use

8,000
10,000
12,000
15,000
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Quaker City Rubber Co. Philadelphia

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is the industrial engineering and trade authority of the Automobile Industry—the oldest weekly journal in this field.

Its trade news is complete; its descriptions of new models and products are dependable, being written by its own engineering experts.

THE AUTOMOBILE is edited for those who wish to be thoroughly informed in all matters pertaining to the progress of the manufacture and operation of cars and other products of the industry.

Published weekly, $3.00 per year.

Canada, $5.00; foreign, $6.00.

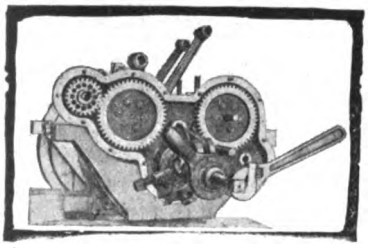
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THE AUTOMOBILE

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(Patented)



With assistance of Lathe Dog Removing Main Driving Gear of Timing Train.

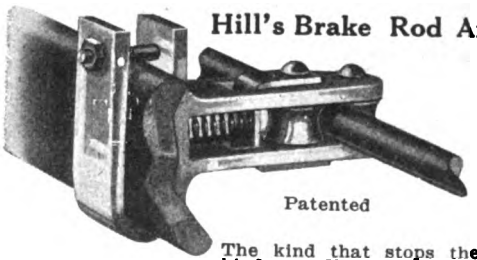
THE MOST USED QUICKEST and HANDIEST GARAGE TOOL

This tool is an absolute necessity in a busy up-to-date garage or repair shop. Built on principle of universal chuck, used with either 2 or 3 jaws, it will quickly and surely
Remove wheels, jackshaft gear, cardan joint, magneto coupling or gear, wrist pin.
Straighten spring axles, steering spindles, frames.
Assemble clutch, remove or replace clutch bushings.
and help in numberless other ways to hasten and lighten repair shop work. Three sets of jaws with each puller. Capacity up to 17 in.
Absolute satisfaction guaranteed or money refunded.

Price complete, $20; 25 per cent discount to dealers and garages.

GEO. A. COLLISON, Burlington, Vermont

Ask Your Jobber



Hill's Brake Rod Anti-Rattler for FORD CARS

Patented

Price Per Pair 50c. Discount to Dealers. Weight 1¼ lb.

The kind that stops the rattle, never binds or fills with mud, and will not wear your brake rod.
Made of malleable iron, pulleys are casehardened, making the only wear on small pins through same, which, if replaced once a year at a cost of about 3c., makes them as good as new.

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The Original Double Arm SHOCK ABSORBER **W&C** For FORD CARS

Recommend W & C

to customers who merely ask for shock absorbers. W & C is what they mean. It insures the easiest riding Fords.

Ask your jobber's salesman or write us direct

PHILIP H. WEBBER & COMPANY

HOOPESTON, ILLINOIS

THE FULTON TRUCK

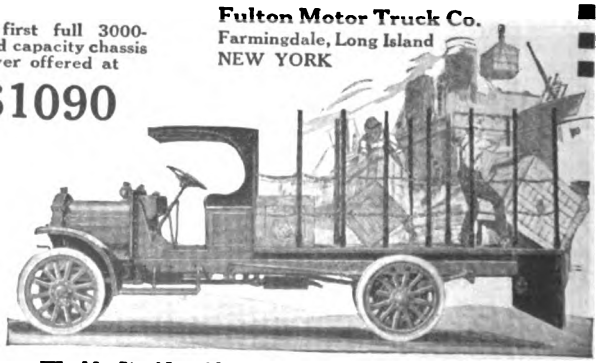
Dealers—*Write for territory still open*

The first full 3000-pound capacity chassis ever offered at

$1090

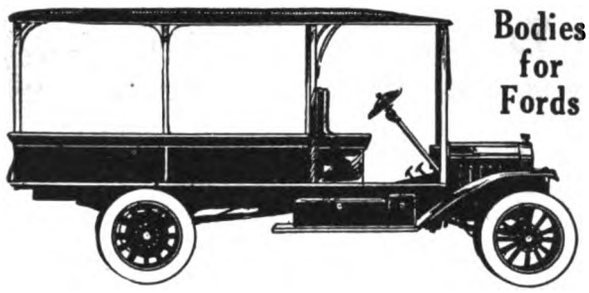
Fulton Motor Truck Co.

Farmingdale, Long Island NEW YORK



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CLOVERLEAF 5 PASSENGER ROADSTER, RACER AND COMMERCIAL BODIES

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THE F. A. AMES CO., Inc.

Motor Division OWENSBORO, KY.

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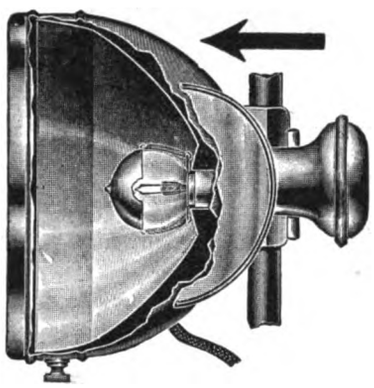
ACCURATELY CUT METAL GEARS and Bailey Non Skid Non Stall Differential

N.P.R.H.

N.P.R.H.

NEW PROCESS GEAR CORPORATION

SYRACUSE, N. Y.



Pittsburgh Parabolite

The kind of non-glare spot light that the experienced driver looks for.

6¾ in. triple curvature reflector, 4 in. mirror, C-H switch, T-swivel bracket. Price $7.50. Send for descriptive literature.

There's a Pittsburgh Spot Light for every purpose.

Pittsburgh Electric Specialties Co., Pittsburgh, Pa.

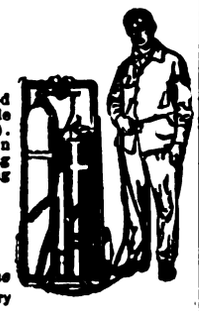
Add to Garage Profits by Oxy-Acetylene Welding

savings made, please your patrons and pay good substantial profits.

PREST-O-LITE

Dissolved Acetylene

(Ready-made carbide gas)



adds to the efficiency and usefulness of any good welding equipment. We furnish thoroughly high-grade welding apparatus for $75.00 (Canada, $100 00). The average user will also need gas cylinders at an additional cost, and about $10.00 worth of welding supplies. Truck and special equipment for cutting operations at extra cost.

Send for details of Prest-O-Lite Service for Oxy-Acetylene Welding.

THE PREST-O-LITE CO., Inc.

The World's Largest Makers of Dissolved Acetylene

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"Light Six" $1595

"Light Twelve" $2095

AMERICA'S FIRST CAR

DEALERS!

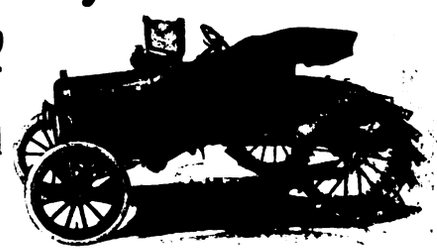
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$125.00



Fits Any Ford

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BRANCHES IN 55 LARGE CITIES

MANLY

America's New Quality Truck

1½-Ton and 2½-Ton Models

Constructionally Superior in 24 Different Particulars

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The BEST wrench in the WORLD



"WESTCOTT"

"Westcott" is the original, adjustable "S" wrench—more convenient for motor work than any other wrench.

"Westcott" superiority is shown by its popularity with the best mechanics. It is used in the Ford factories and by many other automobile concerns.

Malleable Iron Handle—Forged Steel Jaw.

Sizes 6 to 14 in. (open from ¾ to 2 in.) Price per doz., $7.20 to $21.

Get them in your catalog.

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16 W. 60th St. New York City

AUTOMOBILE FABRICS

A Fabric for Every Purpose for Open, Closed, and Convertible Bodies

"Eklips" The Spark Plug of Many Merits

A MULTI-POINT plug of specially heavy construction. Soot-proof, leak-proof and oil-proof features. Gives a sure, hot spark. Finished carefully in all details which effect its appearance or service.

Made in different styles, sizes and threads to fit all cars.



The Fulton Company
721-723 National Ave.
MILWAUKEE, WIS.

RAJAH TERMINALS

For Ignition, Starting, Lighting Systems



Ferrule Clip Thrust Form (¾ Actual Size)

CLIP

Ferrule Clip furnished in Thrust form, Hook form and Short Clip form to fit any wire up to ⅛" in diameter.

Wing Clip for quick attachment any size cable.

Collars supplied when necessary with Clip Terminals to use with any plug

PRIMARY

Style "A" made in 3 lengths from the bend of the Ferrule:

No. 1, 13/16 in.;

No. 2, 11/16 in.;

No. 3, ½ in.

Primary with ferrules same as Ferrule Clip.



Style A Loop No. 1 (Actual Size)

RAJAH AUTO-SUPPLY CO., Bloomfield, N. J.
John Millen & Son, Ltd., Montreal, Toronto, Winnipeg, Vancouver

Firestone
Tire and Rubber Co.

Makers of the First Truck Tires
Leaders Then and Leaders Now
In Quality and Volume

PATENTED

DUBOIS POWER RINGS TRADE MARK

Put More Power In Your Engine!

No pins in the DuBois Power Ring. Gas cannot get by—neither will it carbonize.

DuBois Piston Ring Co., Inc.
Dept. R,
Albany, N. Y., U. S. A.

The DuBois Power Piston Ring will take the trouble "kick" out and put the power "kick" in.

Write or wire for representation in your territory.

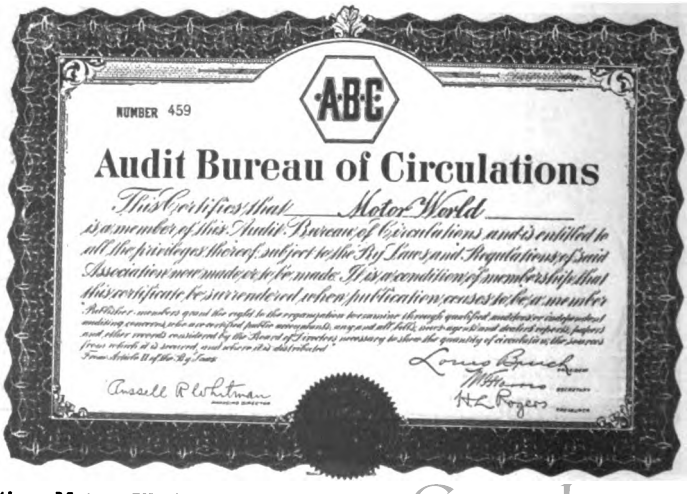
OLD SOL
NITROJECTOR No 100
THE 100% PERFECT SPOTLIGHT



$10

Complies with all laws for no-glare devices. Other dependable Old Sol Spotlights are No. 70—$7.00, No. 77—$5.00
Ask for Old Sol for Safety

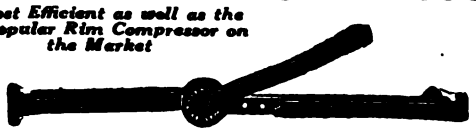
Hawthorne Mfg. Co., Inc., Bridgeport, Conn., U.S.A.



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The Most Efficient as well as the Most Popular Rim Compressor on the Market



The Eureka Rim Compressor will remove or replace tires in less than half a minute. Can be used for any detachable rim of the transverse split type.

It is attached to the rim without the use of clamps or screws. It is quickly applied and operated. It is impossible for it to injure the rims, casings, or tubes, in any way.

The Eureka is strongly made. Guaranteed free from imperfections in material and workmanship. Price, $3.00.

EUREKA RIM COMPRESSOR, Inc., Addison, N. Y.

The

Pullmore

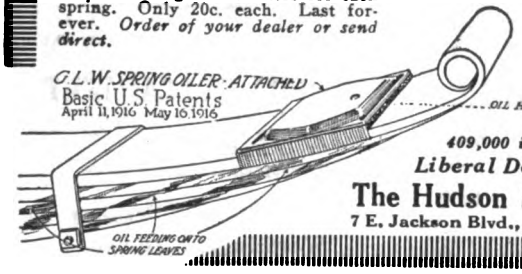
Front Drive

is Coming

THE G. L. W. SPRING OILER

Takes the Place of Expensive Shock Absorbers

Absolutely prevents spring breakage, rust, squeaks and crystallization. Adds 30% to tire life. Any spring replaced free that breaks after G. L. W. Oilers have been in place and in use 3 days. Be sure to state width of front and rear springs and make of car when ordering. Two oilers for each spring. Only 20c. each. Last forever. *Order of your dealer or send direct.*



Price 20c. Each

409,000 in Use Today

Liberal Dealer Offer

The Hudson Sales Co.

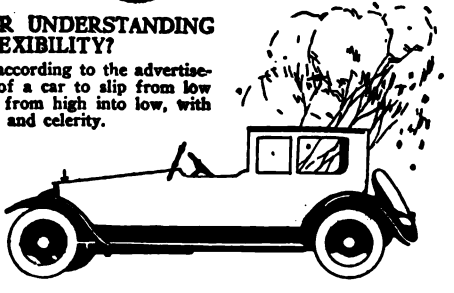
7 E. Jackson Blvd., Chicago

OWEN MAGNETIC

WHAT IS YOUR UNDERSTANDING OF FLEXIBILITY?

Flexibility means (according to the advertisements) the ability of a car to slip from low speed into high, or from high into low, with extreme smoothness and celerity.

Flexibility—approached in other cars—is actually attained in the Owen-Magnetic.



BAKER R & L COMPANY

Cleveland, Ohio

Manufacturers of OWEN MAGNETIC MOTOR CARS

Salesrooms— New York Boston Philadelphia Chicago

PACO The Original Racing Body for Fords

The designers and manufacturers of PACO Racing bodies have had one aim in view ever since they first appeared on the market: to build a racing body that will give to a Ford all of the class and distinction possible and at the same time withstand the wear that such a body will receive.

PRICES
Model 21, $146
Model 22, 105

Design patented Jan. 23, 1917

Our 1917 Improvements

have made the bodies more attractive, more easily mounted, easier to drive and more durable. Let us send you our new descriptive literature. Get your PACO in time to get a full season's use out of it during 1917.



Paco Manufacturing Co.

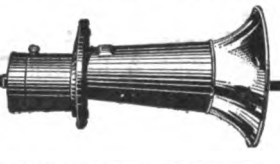
Dept. 10, Galesburg, Ill.

SPARTON

Quality Products

Sparton Motorhorns—hand-operated and motor-driven.
Sparton Gasoline Vacuum System.
Sparton honey-comb radiators and Sparton Radiator Fans.

The Sparks-Withington Co., Jackson, Mich., U. S. A.



Inter-State

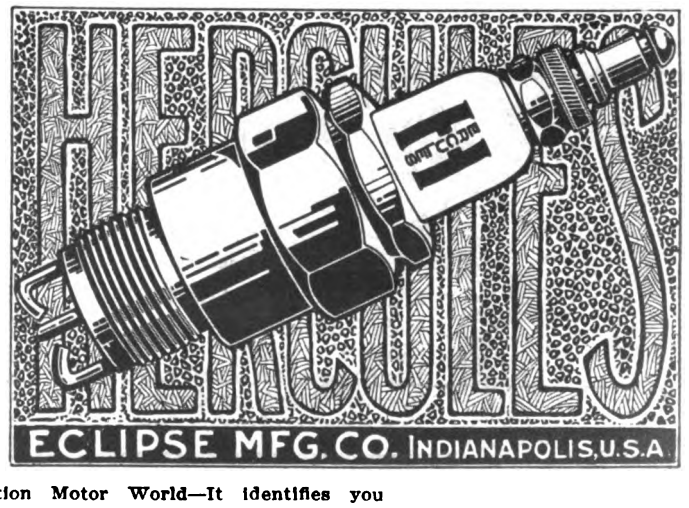
SIX BODY STYLES

$850 to $1325

Write to-day for illustrated catalogue and territory information.

Complete line of export models for foreign markets. Prices on application.

Inter-State Motor Co. Muncie, Ind.



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Oversize Pistons

for

BUICK CARS

ALL MODELS

E. R. Sloat

1302 Woodward Ave., DETROIT, MICH.



Away from the rank and file and emphatically in the class of cars of dominant character and personality stands the MARION-HANDLEY. Send for Catalog.

Model A-6-40, $1275; Model B-6-60, $1575; f.o.b. Jackson.

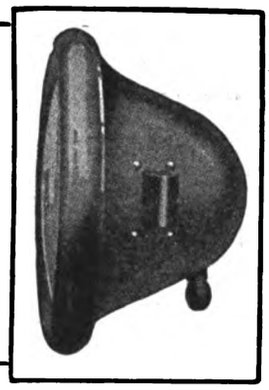
THE MUTUAL MOTORS COMPANY Jackson, Michigan

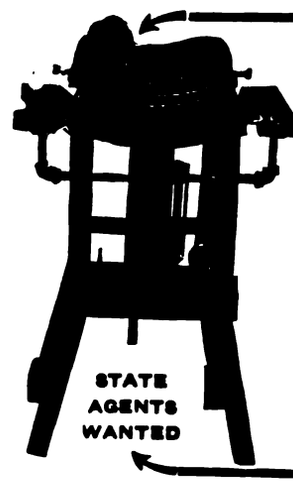
J. I. Handley, President

Use Headlights That Identify Your Car

Distinctive types of electric headlights for all cars. Lights that identify your car. Built by the largest manufacturer of automobile lamps.

The John W. Brown Mfg. Co.
Columbus, Ohio
Detroit Office: Suite 411, Union Trust Building.





For Garages and Independent Plants

Our steam vulcanizer takes care of sectional repairs on all tires ranging in size from 1½" bicycle tires to 37" x 5" Automobile Tires. Capacity 3 casings and four tubes. Complete, with set of tools

ANDERSON STEAM VULCANIZER

and ready to operate. Send for prices and full particulars

Get our proposition on new model.

Anderson Steam Vulcanizer Co.
Worthington, Indiana



DELION
Long Service
TIRES

Each Delion dealer gets *all* the Delion trade in a definitely-named territory. This holds good *permanently*. And he gets the profits he *should have* in tires. Investigate.

DELION TIRE & RUBBER CO., Inc.
Main Office: 1922 Broadway, New York
Chicago Office: 3449 Michigan Ave., Chicago



Fedders Radiators

Fedders quality is largely the result of 18 years' specializing in radiator production.

Fedders Manufacturing Co.
Buffalo New York



Mosler VESUVIUS Plug

PRICE $1.00 AT ALL DEALERS

Stone Insulator.
Absolutely gas-tight.
Has no equal for Speed and Power.
Sizes and threads for all motors.
New schedule of trade prices.

A.R. Mosler & Co. New York, U.S.A.



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The UTILITY Universal Rim Wrench Fits Every Demountable Rim Nut

A complete socket wrench set in itself. Adjusts automatically. Can be used with both hands, like a bit and brace. Holds like a vise. Cannot slip off. Carries in the tool box when not in use. Price complete only $1.50. Write for free illustrated literature. Liberal dealers' offer.

HILL PUMP VALVE COMPANY
ARCHER AVE. & CANAL ST., CHICAGO
Mfgrs. of Famous UTILITY Protected Heater for all Motor Cars.

"The Tenth Anniversary Car"

REGAL-4-THIRTY-TWO

Four Cylinder Motor.
Built in Our Own Shops. 108-Inch Wheelbase.
Generous Room for Five.

THE PRODUCT OF EXPERIENCE.

$745

REGAL MOTOR CAR CO.,
Dept. "E," DETROIT, MICH.

JUMBO SPARK PLUGS

Jumbo "MOLITE" $1.25
Guaranteed For The Life of The Car



Other types for Fords and other cars, $0.75 and $1.00. Ask your dealer or write direct to the manufacturers. 69-37

GIBSON-HOLLISTER MFG. CO.
3380 WASHINGTON ST.,
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STANDARD ELECTRIC TOOLS



You cannot afford to use any but the best electrical tools. Only first class tools give you the service you require.

THE "STANDARD" ELECTRIC TOOLS ARE THE BEST ON THE MARKET

We can submit a list of users and data to prove this statement.

Both Drills and Grinders are fitted with Universal Motors for use with alternating or direct current. Can be operated from either lamp socket or power circuit. Equipped with Ball Bearings.

We offer Special Proposition to Dealers. Write us today.

The "Standard" Electric Tool Co.
CINCINNATI, OHIO, U. S. A.
New York Office 1328 Broadway

NO-RAIN-IN-THE-FACE
Transparent Weather Strip

Every dealer, no matter where he is located, will find a ready sale for this article because its merit instantly appeals to the motorist.



NO RAIN IN THE FACE.

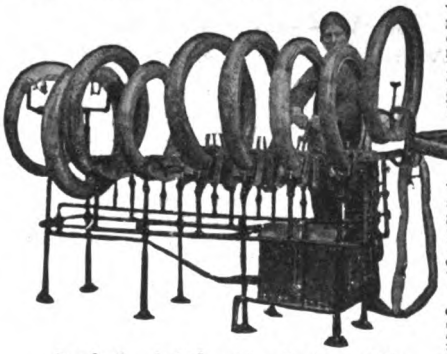
It is made of transparent celluloid and furnished in 40 inch lengths so that it may be cut to fit any windshield. It is practically indestructible; fits snugly without fasteners; does not interfere with the vision; is Wind and Waterproof.

This is now standard equipment on some cars and is extensively sold by dealers and jobbers. Proof of merit is the number of repeat orders received every day.

75c Each
Postpaid on receipt of price.
Liberal trade discount.
Order a stock now.

THE AKRON AUTO GARAGE CO.
Akron, Ohio

YOU AS A THRIFTY MAN



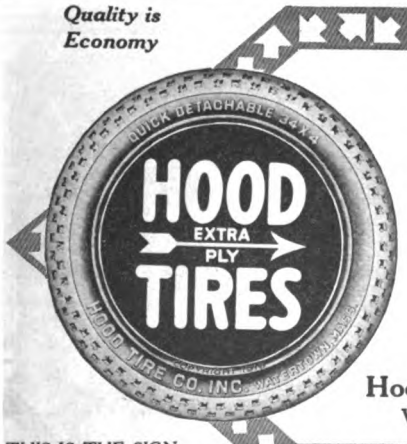
can get out of the rut with this new invention, which makes it possible for you with a little capital and a little nerve to

Earn $250 a Month

with the best vulcanizing machine made. Less fuss, less labor, less trouble; takes up less room; its good work brings new jobs; and it sells for a *lower price!* Free delivery within 500 miles. Full instructions with each machine containing **Valuable Money-Making Secrets** of the trade. Glad to respond to all inquiries — write to us NOW lest you forget and this splendid opportunity slip from your grasp.

Battle Creek Vulcanizing Equipment Co.
114 West Main Street Battle Creek, Mich.

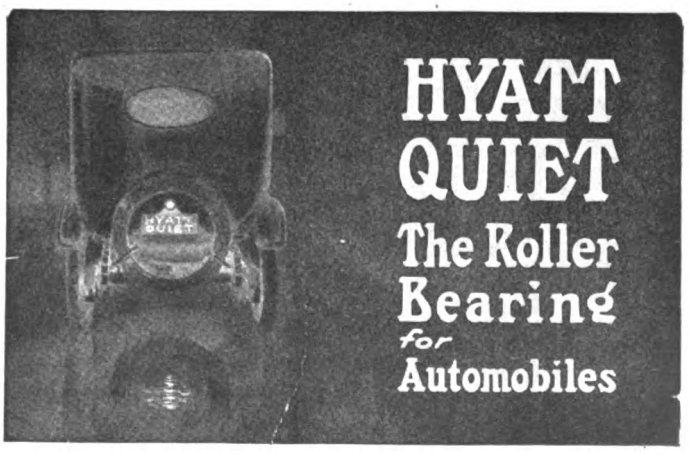
Quality is Economy



No better tires can be made; their high quality means real dollars and cents economy.

Hood Tire Co., Inc.
Watertown, Mass.

THIS IS THE SIGN OF A HOOD DEALER



HYATT QUIET
The Roller Bearing for Automobiles

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PERLMAN
RIM
CORP'N
1790
Broadway,
New York City.
CONTROLLING
PERLMAN
DEMOUNTABLE
RIM PATENTS

The JOHNSON GAS FURNACE
Makes Profits From Savings

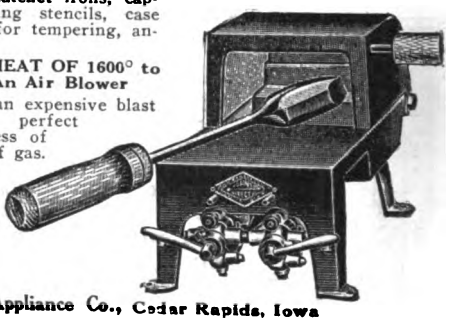
A new money maker for repair men, soldering coppers, hatchet irons, capping steels, branding stencils, case hardening, heating for tempering, annealing, etc.

GIVES INSTANT HEAT OF 1600° to 1800° Without An Air Blower

Takes the place of an expensive blast furnace. Insures perfect combustion regardless of pressure or quality of gas.

If your jobber cannot supply you, write direct for No. 101 JOHNSON Furnace, or free illustrated literature.

Unsurpassed for heating



The Johnson Gas Appliance Co., Cedar Rapids, Iowa

Rie Nie
GERMAN
RADIATOR COMPOUND

Makes Permanent Mends Without Clogging

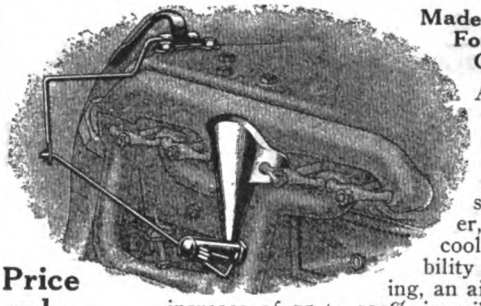
Only one tablespoonful necessary to permanently repair any ordinary leak in any radiator or cooling system. We guarantee it will not clog the system. Demonstration has proven that a mend in a water jacket will stand 250 lbs. air pressure after 3 years' service. Prevents rust and scale formations.
Attractive tins, each.....$.75



Sold Only Through Dealers

DURKEE-ATWOOD CO., Minneapolis, Minn.

The Foot Air Accelerator



Made Especially for Fords—Regulates Combustion

A new, big seller that by injecting hot air into the Intake Manifold *guarantees* more speed, more power, less carbon, a cooler motor, flexibility and ease in driving, an air brake, and an increase of 75 to 100% in mileage from fuel.

Price only $6

Dealers wanted *Exclusive territory for distributors* *Write*
FOOT AIR ACCELERATOR CO.
Union Central Bldg. Cincinnati, Ohio

Stronger than Cast Iron
FEATHERWEIGHT
Aluminum Alloy Pistons

For FORD
REO
DODGE
CHALMERS
OVERLAND
WHITE
and others



WEIGHT

Takes the weight off your bearings. Cuts down vibration and noise. Saves fuel and increases speed.
Ford set costs $18 complete, with piston rings and pins.

Dealers should write at once for information.

FEATHERWEIGHT PISTON CO.
11 Guyman Way Pittsburg, Pa.



A Fifty-One-Year-Old Concern
Is Back of the
STEPHENS SIX $1225

That insures the stability you want behind YOUR car, the confidence that the product itself is right, and that the manufacturer will continue to always make it right.
There is some excellent dealer territory still unallotted.

Stephens Motor Branch of Moline Plow Co. Moline, Illinois

Two Models. Each $1225
5-Passenger Touring Car
3-Passenger Roadster

BURD
High Compression
PISTON RINGS
"The Accepted Standard"
BURD HIGH COMPRESSION RING CO.
ROCKFORD, ILLINOIS
Sales Offices in All Principal Cities

Ever Good
TRADE MARK
Double Spring
BUMPER



Emil Grossman Mfg. Corp'n
Bush Terminal Bldg. No. 20 BROOKLYN, N. Y.

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For Second Hand Cars, Surplus Parts, Accessories, Tires, Machinery & all other Special Announcements of a Similar Character

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28 x 3	$6.00	$1.50
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30 x 3½	8.00	2.25
31 x 3½	8.50	2.50
32 x 3½	9.00	2.40
34 x 3½	9.15	2.45
36 x 3½	10.75	2.65
30 x 4	9.20	2.80
31 x 4	11.75	2.75
32 x 4	11.95	2.90
33 x 4	12.60	3.00
34 x 4	13.10	3.15
35 x 4	13.50	3.35
36 x 4	14.00	3.45
37 x 4	18.25	3.75
34 x 4½	16.00	3.85
35 x 4½	16.50	3.90
36 x 4½	16.80	4.00
37 x 4½	17.25	4.15
35 x 5	16.40	4.45
36 x 5	17.80	4.55
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10% more for non-skid.

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32 x 3½	5.25	1.40
34 x 3½	5.50	1.50
36 x 3½	6.25	1.50
30 x 4	6.50	1.50
31 x 4	6.25	1.55
32 x 4	7.00	1.55
33 x 4	7.25	1.60
34 x 4	7.75	1.60
35 x 4	7.25	1.60
36 x 4	7.50	1.75
37 x 4	8.70	1.85
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Hudson M/33, 1911	1.00
Hudson M/33, 1912	1.00
Buick M/10, 1910	1.00
Buick M/17, 1911	.90
Chalmers 40, 1907	1.75
Chalmers 40, 1909-10	1.75
Chalmers 40, 1911-12	1.25
Abbott 44, 1911-12-13	1.00
Jackson, 1910	1.00
Cole, 1910	1.00
Penn 30 H.P., 1909	1.00
Thomas 60 H.P., 1912	1.75

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Hudson 1910, 1911, 1912	$0.40
Cole, 1910	.40
Buick, 1910	.40
Buick, 1911, M/17	.50
Jackson, 1910	.40
Jackson, 1911	.50
Chalmers 40 H.P., 1907-08-09-10-11	.60

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Bulletin No. 4

J. C. Gorey & Co.

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Interstate	Crawford	Everett 30
Flanders 20	E.M.F. 30	Mitchell
Cole 30	Winton 6 cyl.	Velie
Palmer Singer	Regal	Krit
Matheson Six	Chalmers	Oldsmobile
Locomobile	Rambler	Paige
Peerless	Jackson	Gleason
Lexington	Ford N.R.S.	Cadillac
Black Crow	Royal Tourist	Garford
Studebaker	Case	Reo
Glide	Auburn	Adams Truck
Detroiter	Stevens	Stearns
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Glide	Selden
Great Northern	Stafford
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Waelde the Welder

2 and 4 Clinton St. Poughkeepsie, N. Y.

DON'T SCRAP ALUMINUM PARTS—TRIAL BAR 50c

SO-LUMINUM, new welding compound for aluminum, is stronger than aluminum—perfect substitute for acetylene. ½ time and cost. Use gasoline torch. So-Luminum Mfg. Co., 1790 Broadway, New York.

Machinery

Frank Toomoy, Inc.

LATHES, MILLING MACHINES

Shapers, Drill Presses, Garage Air Compressor Outfits, Grinders, Electric Motors, etc.

Spot Cash Paid For Used Tools

127-131 N. 3rd. Philadelphia, Pa.

Machinery Wanted

Lathes, Milling Machines, Automatic or Hand Screw Machines, Planers, Shapers, Drill Presses. *Will Pay Highest Prices.*

MODERN MACH. EXCHANGE

182 Centre Street New York City

Wanted—For Cash

UNIVERSAL MILLING MACHINES

Shapers; Lathes, Tool Grinders; etc.

HIGHEST PRICES PAID

For Sale—Large Stock

MACHINE TOOLS Immediate Shipment.

Call, write, or 'phone for stock list.

A. LAMBERG & CO. 241-251 Centre St. New York City.

Mailing List

AUTO MAILING LISTS

36,931	Auto Dealers, U. S.	$50.00 or $2.50 per M.
8,884	Ford Dealers	18.50 or 3.00 per M.
38,453	Garages	50.00 or 2.50 per M.
36,431	Repairs	50.00 or 2.50 per M.
45,298	Supplies	60.00 or 2.50 per M.
1,136	Auto Supply Jobbers	4.00 complete list
57,703	Dealers, Garages, Supplies and Repairs in one list, no duplicates, $80.00 or $2.50 per M.	

Have complete list Auto Owners and Ford Owners $2.00 per M. Further particulars.

Trade Circular Addressing Co.

166 W. Adams St., Chicago

Franklin 1182

Manufacturers' Opportunities

AGENCIES DESIRED

for a high-class line of Automobiles and Automobile Accessories, Tires, etc., by efficient corps of young salesmen of long experience in automobile line to cover State of New Jersey and adjacent territory. Highest financial responsibility. Bank references given.

J. J. Rafferty

Natl. State Bank Bldg., 810 Broad St., NEWARK, N. J

Having an attractive show window and salesroom on Automobile Row (Broadway) a responsible manufacturer is desirous of securing an additional line as a distributor. Apply Box O-317, care Motor World.

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Help & Situations Wanted

ALL AROUND AUTO MECHANIC WITH 14 YEARS' EXPERIENCE

specializing in overhauling and rebuilding of cars, welding and electric auto equipment, especially battery work, is open for position after April 1. Have had charge for 28 months of all electric auto equipment, including electric gear shift on now extinct high priced car. At present have charge of a country garage, will go anywhere, either as mechanic or take charge of mech. dept.

JNO. G., c/o Southern Tier Garage, Bath, N. Y.

WANTED

Expert repairman in a town of 3600 in central part of Illinois. Must be sober. Good salary to right party. Married man preferred. Address Box O-112, care Motor World.

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FOR SALE
AUTOMOBILE BUSINESS

carrying most popular line of cars and accessories; in a thriving New England city, population over 32,000. Excellent business opportunity. Best of location. Good lease. Capital required $8,000 to $10,000. Good reasons for selling. Opportunity knocks at your door but once. Write quick. Address Box O-216, Motor World.

FOR SALE

Established Tire & Supply Business, in operation ten years. Annual business $35,000.00 to $40,000.00. Good agencies. Located below snow line.

Address Box N 810, care Motor World.

Engineers

THOMAS T. GRAY

RESEARCH CHEMIST AND PETROLEUM ENGINEER

Specializing in the examination of Gasoline, Lubricating Oils and Petroleum Products.

MANUFACTURING AND RESEARCH LABORATORY

1352 North Ave. Elizabeth, N. J.

Cars for Sale—Wanted

Matheson

Cars and Repair Parts

FRANK F. MATHESON, Wilkes-Barre, Pa.

Carburetors

ALL SEASON'S RECORDS

made with Schebler equipment. Why not get a Schebler model E for your car? Our exchange proposition makes it easy.

J. C. NICHOLS, Direct Factory Distributor
1673 Broadway New York

Storage and Shipping

P. BRADY & SON CO.

Trucking and Storage. Automobiles and Bodies Stored. Automobiles boxed for Export.

532-536 West 58th St. NEW YORK
Telephone, 3440 Columbus.

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DEALERS: Do your own monograming with our transfer letters. They are durable, artistic, easily applied and always ready. Catalog on request.

MOTORISTS' ACCESSORIES CO.
Mansfield, Ohio.

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FREE BOOKLET

"How to Succeed in the Automobile Business," on application—$40,000 equipment—eight instructors—actual work, repairing and driving—Day and evening classes. Greer College of Motoring.
1456 Wabash Ave., Chicago.

A QUICK TURN OVER

MANUFACTURERS!

The odd parts and material of all kinds left over from this and maybe previous years manufacturing can be *quickly* turned into *cash*—through the

Clearing House Advertising Columns

of

MOTOR WORLD

No lot too small nor too big to clear up.

Send us a list of your odds and ends and without in any way obligating you we will submit a specimen Clearing House advertisement along with advertising rates.

FOR A

Quick Turn Over

ADDRESS

THE CLASS JOURNAL CO.

CLEARING HOUSE DEPT.

239 West 39th St. New York City

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CONTRACT WORK

Advertisers in this section have facilities at their disposal to take on additional work on contract — AUTOMOBILE SPECIALTIES OF ALL KINDS MANUFACTURED ON CONTRACT BASIS

SPECIAL MACHINERY - PRESS WORK - AUTO MACHINE WORK
FOUNDRY WORK - AUTOMATIC SCREW MACHINE WORK

ADVERTISING RATES ON REQUEST

Toolmakers For The Particular

Tools of Every Description

Jigs, gauges, all types of cutters, dies, punches, etc.

Special Machinery Designed and Built.
ESTIMATES GIVEN

DOVER-McDEVITT
80 Clifford St. Prov., R. I.

IF YOU WANT PARTS

Of Any Kind Manufactured

Communicate with THE INTERESTS

Back of this advertisement, stating your requirements, as we are so situated as to serve you to advantage.

Address Box W722, c/o Contract Dept., Motor World.

SERVICE PARTS

GEARS—SHAFTS

We manufacture and distribute the following parts: Transmission Gears, Countershafts, Slide Shafts, Differential Gears, Axle Shafts, Piston Pins, etc.

SERVICE GEAR & MACHINE CO.
Reading, Pa.

General Machine Works

Contract Manufacturers of

Gears, Machine Parts, Machine Assembling, Jigs, Fixtures and Tools

We want to quote prices. Send Blue-prints

GENERAL MACHINE WORKS
York, Pa.

New Ideas

in automobile parts and accessories manufactured and distributed through our own selling organization. Let us save you trouble and expense.

Higginson-Gibson Mfg. Co.
Boston, Mass.

Advertise Under Contract Work for Results



Ask Lewis about valves We make valves exclusively—special heat-treated valves that "stand up" in service. Don't take chances. For anything in valves, write

Lewis Electric Welding & Mfg. Co.
TOLEDO, OHIO

Stop the Spring Breakage

It's poor policy to risk rating the annoyance of a broken or weak spring—and the delay—by saving only a very little in buying or selling a *cheaper* spring instead of a "NEW ERA *BETTER* SPRING." Don't replace a broken spring with one no better. Wise dealers sell only the best. New Era "BETTER" Springs are the oldest and largest used line for replacement—at same price as from car factories. Made for all cars. GUARANTEED one year against breakage or sagging, graphited between leaves for two years' lubrication. Write for complete lists, discounts or state requirements and class of business.



New Era Spring & Specialty Co.
879 Woodward Ave., Detroit, Michigan

Beau Brummel Bodies For Ford Chassis

DEALERS—We want to show you what a profitable line the Universal Car Equipment Co. can offer you. Write us today for full information. If you want to handle an exclusive territory proposition we will help you get the business.

UNIVERSAL CAR EQUIPMENT CO.
1306 BELLEVUE AVE. DETROIT, MICH.

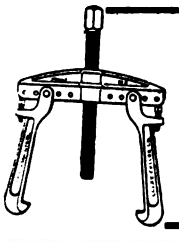
AJAX TIRES

Branches in Leading Cities

Factories: Trenton, N. J.

Guaranteed in Writing 5000 Miles

AJAX RUBBER CO., Inc., 1796-98 Broadway, New York



Crane Wheel Pullers

For Removing Auto Wheel, Gears, etc.

New Locking Arm holds Puller on your work

Send for Bulletin D. Puller Arbor Press, etc.

CRANE PULLER CO., Arlington, Mass.



Blake Insulated Staples

—give perfect protection to wire insulation —can be driven over two or more wires without danger—double thickness insulation over staple head protects from leaks, rust and corrosion.

Easily driven.



Manufactured and for sale by
BLAKE SIGNAL & MFG. CO., 251 Causeway Street, Boston, Mass.



PERFECTION PEDAL PADS

add to the comfort and the safety of motoring.

Every car owner will buy a set when he sees these live rubber foot cushions—their **reversible** feature doubles their life, and cuts in half their already low cost. We make them for the pedals of all cars.

Get on the band-wagon, Mr. Dealer. Here's a Money-Maker.

Pat'd Dec. 21, 1915.

Auto Pedal Pad Co., 798 Seventh Ave., N. Y. City

CROWN FENDERS

Dealers Write for Special Prices On Crown Fenders for Ford Cars

CHICAGO AUTOMOBILE SUPPLY HOUSE
1349-51-53 So. Michigan Ave. Chicago, Ill.



ANNULAR BALL BEARINGS REGROUND

Complete stock reground bearings for immediate exchange. New annular, Thrust Redax and Double row Bearings and high grade steel balls. Special bearings made to specifications.

AHLBERG BEARING CO.
2636 MICHIGAN AVENUE, CHICAGO

St. Louis Los Angeles New York Minneapolis Boston Atlanta Detroit Portland Cleveland San Francisco

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There's Profit In Pushing The Famous 43



Dealers have done it, are doing it—and so can you. Send now for catalog of 43 ready selling

WONDER WORKER

SPECIALTIES

Get behind this line. The sooner you do so the more you will sell.

Two popular items:

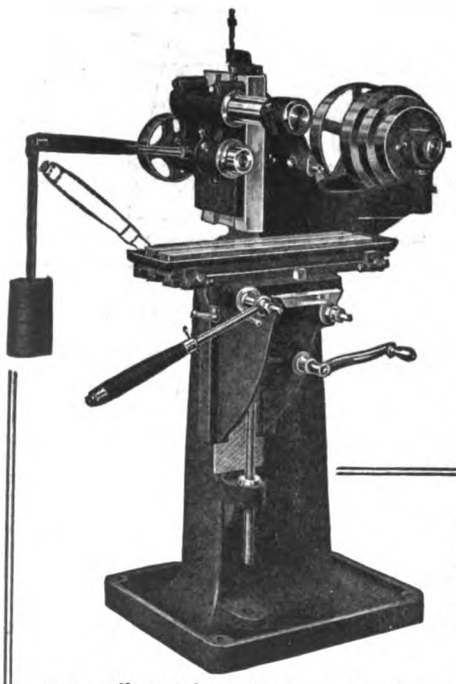
Wonder Worker Vulco—Visco Self-Vulcanizing Patches; Ready for use without cement or acid. Will last as long as the tube repaired. Highly successful wherever used.

Wonder Worker Rival Cementless Patches: No acid, cement nor vulcanizing. Repairs punctures instantly and permanently. Quick and convenient.

Forty-three motor necessities under a single trade-mark that is becoming more widely known every day—a sensible line to handle. Write now for catalog.

THE HALL-THOMPSON CO.
Manufacturing Chemists
Hartford, Conn. U. S. A.





Equip Your Garage With a Whitney Hand Miller

so you won't have to turn away profitable repair business, or turn it over to the machine shops.

The Whitney will take care of any milling job in the line of auto repairs. With it you can cut gears, cams, sprockets, do key-seating, straddle milling, profiling, slotting, slabbing, drilling, die sinking and countless other operations.

With this all-around machine you can handle the work in your own garage. You can avoid delays; you can accommodate customers.

Simply send a postal or Catalog No. 7

The Whitney Mfg. Co., Hartford, Conn.
Chains, Keys, Hand Milling Machines

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The ALLEN TIRE CASE

has earned its reputation as "*the perfect protection for spare shoes*"

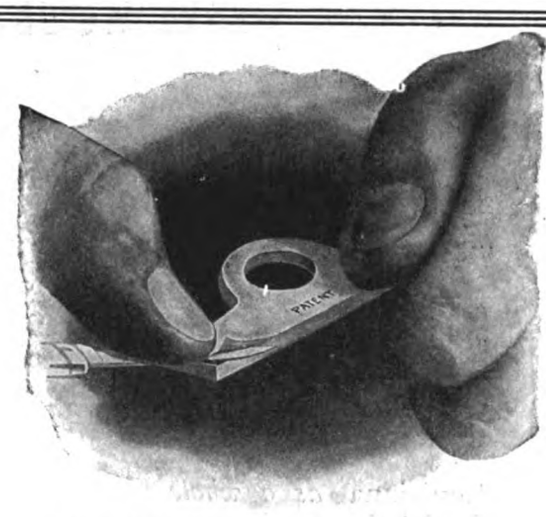


by positively protecting spare shoes from the deteriorating effects of sunlight, oil and water.

Made in all sizes—colors to suit individual taste—price $3 and up. At dealers, or write.

THE ALLEN AUTO SPECIALTY COMPANY

2007 Michigan Ave. CHICAGO — *Manufacturers* — 1526 Broadway NEW YORK



INVESTIGATE LAMINUM

THE MULTI-PLY, ONE PIECE SHIM FOR SPLIT BEARINGS

HANDY SIMPLE ACCURATE

Anything that will save time is worth looking into:

You will find it pays to use Laminated shims. They combine the good qualities of solid and loose leaf shims and have none of their troublesome features. Besides they are quicker, more accurate, and make a good tight bearing.

Laminum is made up of thin leaves of hard brass (either .002" or .003" thick) held together in a compact piece by a metallic binder. We furnish it in stock sheets, in various thicknesses. It can be stamped into desired shapes like sheet brass. We will stamp out bulk orders to suit your needs. Your jobber can furnish you with sizes and shapes generally in demand, such as shims to fit Ford engines. Write him at once.

Send for a sample.

LAMINATED SHIM COMPANY

New York, 533-541 Canal St.; Detroit, 2113 Dime Bank Bldg.; San Francisco, F. S. Peterson, 60 Pine St.; St. Louis, 1411 Chestnut St.

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Sometimes *it's* the dealer sometimes *it's* the territory but—

when an entire State like

Louisiana

shows 288.5% increase in 1916 Studebaker sales—it proves the advantage of having Studebaker Value in the car you sell.

288.5 Sales increase in this ONE State proves that Studebaker VALUE makes money for Studebaker dealers

A State, mind you, a whole State, not an isolated dealer blessed with an extraordinary personality, or a picked territory that proved unusually rich in sales.

Louisiana *as a whole* responded to Studebaker value in no uncertain terms, the 288.5% sales increase proves it.

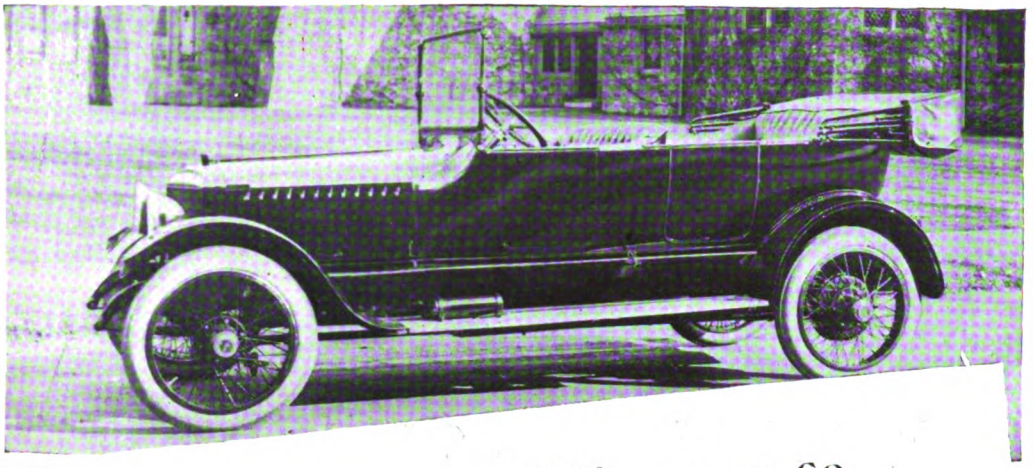
In every part of Louisiana Studebaker VALUE made sales speed up. And the result was a golden harvest for Studebaker dealers.

So you see, it pays to be a Studebaker dealer, it pays in round, hard dollars to *sell a car that the public wants*—a car whose design the whole industry approves, but does not match in value.

Write for further information.

It pays to be a Studebaker dealer

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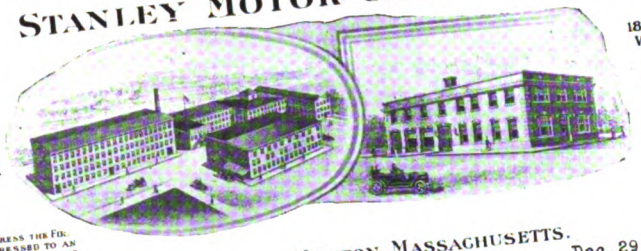


FOUNDED 1898

STANLEY MOTOR CARRIAGE CO.

WORKS AND OFFICES AT NEWTON MASSACHUSETTS

BRANCH AT 2325 CHESTNUT ST PHILADELPHIA, PA



BRANCH AT 185 COMMERCIAL ST WORCESTER, MASS.

BRANCH AT 2101 INDIANA AVE CHICAGO, ILLINOIS

BRANCH AT 1523 CHEYENNE PLACE DENVER, COLORADO

PLEASE ADDRESS THE FIR: A LETTER ADDRESSED TO AN INDIVIDUAL WILL NOT BE OPENED IN HIS ABSENCE

NEWTON, MASSACHUSETTS. Dec. 29, 1916.

Houk Manufacturing Co., Inc.,
1700 Elmwood Avenue,
Buffalo, N. Y.

Gentlemen:-

We used a considerable number of Houk wire wheels on our 1915 and 1916 cars, as special equipment. The specifications for Houk wire wheels on our 1917 orders greatly exceed the figures of this equipment in previous years. Almost invariably those who have had wire wheels on earlier cars are specifying them on their new cars.

We ourselves, are firm believers in wire wheels just as we have always been. You remember how we resisted the advance of the wooden or "artillery" wheel. You remember we continued to use wire wheels exclusively until about 1904 or 1905, and even as late as 1908 we offerred wire wheels with regular equipment on our roadster model.

On the mere basis of strength for weight we believe in the Houk wire wheels. Add to this the fact that a considerable weight is saved and this weight is below the springs -- unsprung weight -- and that the tire change is considerably quicker and neater with Houk wire wheels, even than with demountable rims, and you will see that we are pretty strong believers in Houk wire wheels.

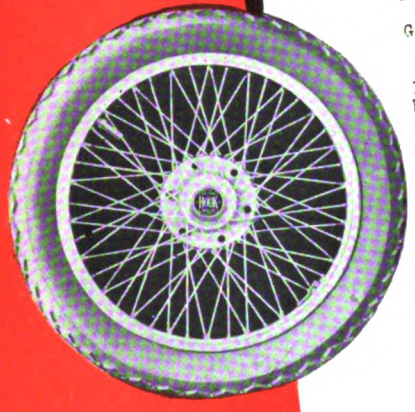
Faithfully yours,

STANLEY MOTOR CARRIAGE COMPANY

Frasco H Warren

Vice President.

PW :H



HOUK

QUICK CHANGE

WIRE WHEELS

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USL

TRADE MARK

U S LIGHT & HEAT CORPORATION

EVERY U S L Battery contains the *exclusive machine-pasted plates.* That means years of service *built* into each battery.

To get this battery life *you* should have your storage battery *inspected regularly;* distilled water added to offset evaporation and batteries kept fully charged.

These details are important, they mean long life and no repairs. Are you doing your part to get out of your battery what the U S L Company built into it?

But remember the U S L exclusive machine-pasted plate is the feature that makes years of service possible and you can only get this service with U S L batteries.

That's why U S L Batteries are sold on a 15 Months Guaranteed Adjustment Plan.

May we send you a booklet telling why U S L Batteries with Machine-Pasted plates are extra durable? It's free.

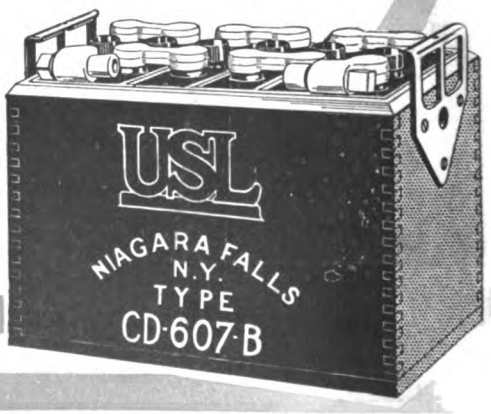
U S Light & Heat Corporation

General Offices and Factory: **Niagara Falls, New York**

Branches in

New York, Chicago, Detroit, Kansas City, San Francisco, Cleveland, Washington, D.C.

Service Stations in Principal Centers



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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume I.
No. 13

New York, March 28, 1917

Ten cents a copy
Two dollars a year

HUDSON REPUTATION

Helps Dealers to Sell More Cars

"Reputation is the best ingredient in merchandise . . . .For when a man or firm undertakes to build a reputation for an article he quite naturally guards it as he would his life."
LOUIS D. BRANDEIS, Justice of the Supreme Court of the U. S.

SINCERITY in all merchandising and manufacturing methods has built an enviable reputation for Hudson. Today we are the largest maker of fine cars in the world.

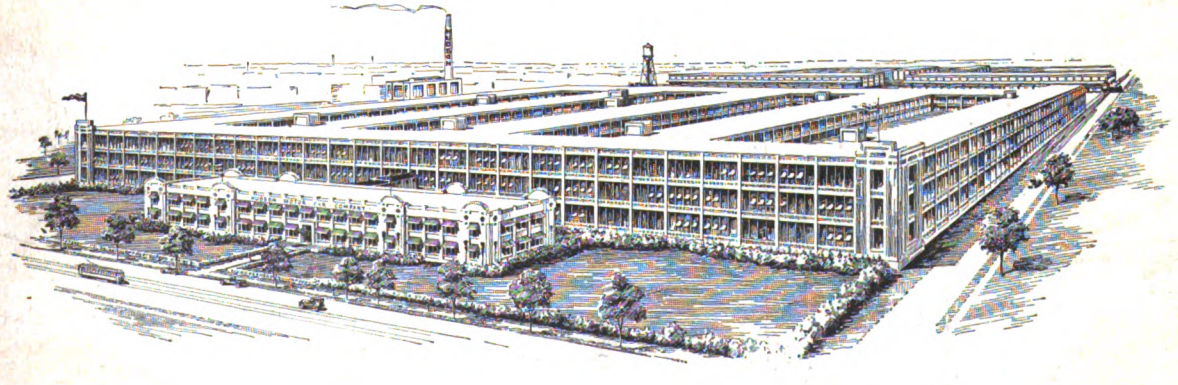
Men who sell the Hudson Super-Six profit by this reputation. They share it. They are recognized as the leading automobile merchants of their communities.

Because of this reputation, it is easy to sell the Hudson Super-Six. Last year 28,000 Super-Sixes were built, but the demand exceeded this by many thousands. This year production will be increased, but conditions will be much the same, for the Hudson Super-Six is the most wanted car today.

It is easy to understand then why Hudson franchises are in such demand. Rarely is there one available. From time to time new opportunities arise. Sometimes a dealer fails to measure up to the Hudson standard and must be replaced. At such a time we want to know the names of all real automobile merchants.

If you feel that you some day might like to become a Hudson dealer and to share this reputation that other Hudson dealers enjoy, send us your name.

HUDSON MOTOR CAR COMPANY
DETROIT, MICHIGAN



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Stewart PRODUCTS

Sell Motorists What They Want

That's the easiest way to increase your sales. Let the easy-to-sell lines earn profits for you. That is how successful dealers operate.

They don't waste time trying to push unknown, unadvertised goods that motorists know nothing about.

Concentrate on one line—Stewart Products. And sell the entire line. Don't make the mistake of selecting one or two Stewart Products. Sell all of them—the Speedometer, Warning Signal, Tire Pump, Vacuum System, V-Ray Spark Plug, etc.

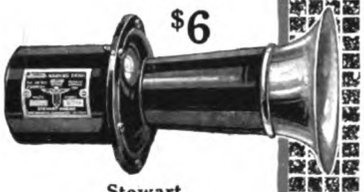
Motorists are sold on the full line of Stewart Products. Then, why shouldn't you cash in on the demand by selling the entire line?

Stewart Products is a growing line. New products are being added. Watch for two new whirlwind sellers to be announced in a few weeks.

Tie up with the growing, fast-selling, easy-to-sell line of Stewart Products.

"It will pay you to see that every car is Stewart-equipped."

Stewart-Warner Speedometer Corporation
Chicago, U. S. A.



$6
Stewart
Motor Driven
Warning Signals



$3.50
Stewart
Hand Operated
Warning Signal



$10
Stewart
Vacuum System



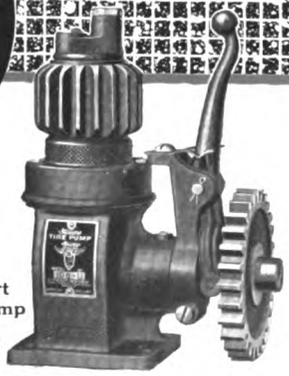
$1
Stewart V-Ray
Spark Plug



Warner
Auto-Meter
$50



Stewart
Speedometer
$25



Stewart
Tire Pump
$12



Stewart Instrument
Board for Ford Cars
Complete

$11.25

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167.5% increase in Studebaker's 1916 sales in Arizona

Arizona dealers say it's Studebaker Value

"MORE than one and a half times as many sales this year as last" —this from Arizona. That increase is for the entire state—not an isolated territory or a specially chosen dealer.

Local conditions varied—each dealer had his own problems to solve, his own sales resistance to offset.

Studebaker VALUE solved the problems.

Studebaker VALUE overcame the resistance opposed by his competitors.

Result—167.5% increase in sales for the state as a whole.

And Arizona is only ONE of the many states reporting increased sales.

Taken all in all these increases go to prove beyond the possibility of a doubt, the truth of our repeated assertion—"It pays to be a Studebaker Dealer."

STUDEBAKER

South Bend, Ind. Detroit, Mich. Walkerville, On.

Address all correspondence to Detroit

It pays to be a Studebaker dealer

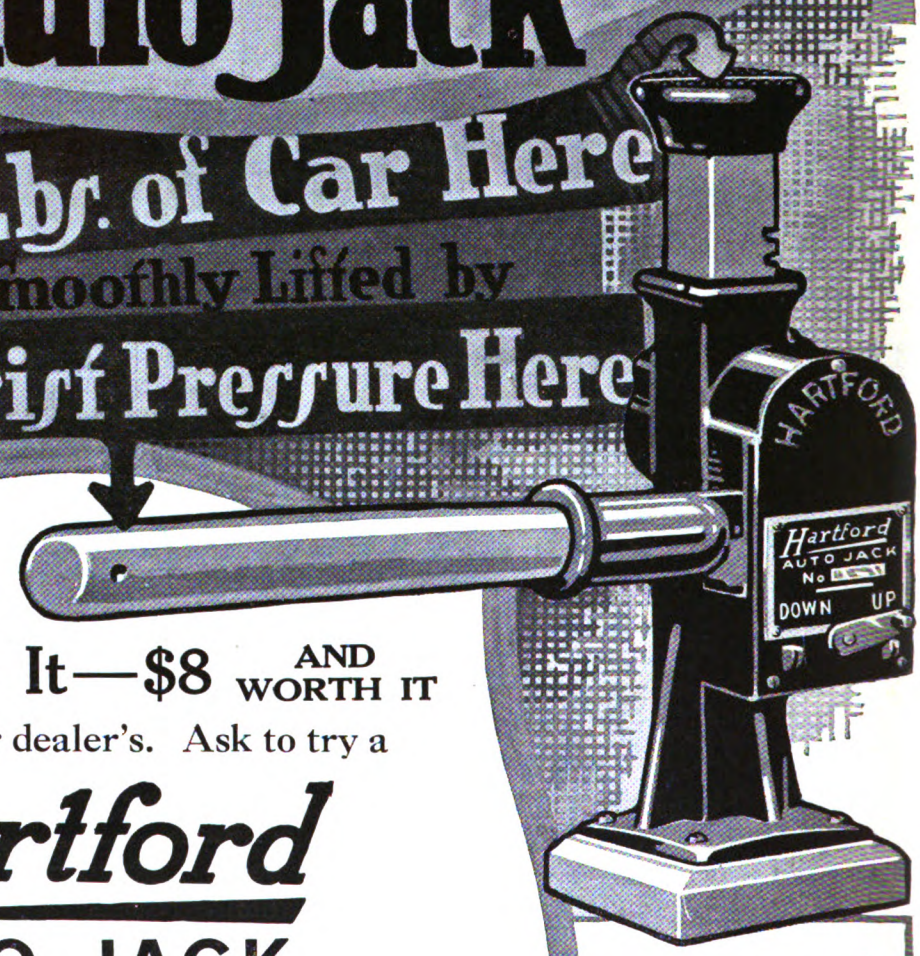
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The Easiest-Working Auto Jack

1000 Lbs. of Car Here

Smoothly Lifted by

15 Lbs. of Wrist Pressure Here



Try It and You'll Buy It—$8 AND WORTH IT

Drive up to your dealer's. Ask to try a

Hartford AUTO JACK

The Best Jack Money Can Buy

Slip it under the axle of your car. Note the remarkable ease with which it lifts.

This will be enough to convince you that here's *the* easiest-working auto jack. Then consider its construction—solid, machine-turned, accurately-fitted steel gears, tough malleable-iron casing, handy reversing lever, long handle, short stroke; beautiful design and finish. Compare it with any other auto jack you ever saw or heard of and you'll chug away with one in your tool box. Positively *the best jack money can buy*. With reasonable care, will outlast two automobiles.

EDWARD V. HARTFORD, Inc.

Heretofore Known as Hartford Suspension Co., 142 Morgan St., Jersey City, N. J.
Makers of the Hartford Shock Absorber, E. V. Hartford Electric Brake, Hartford Auto Jack, Hartford Bump Absorber

Branches: New York, 1846 Broadway, and Service Station, 1926 Broadway; Boston, 319-325 Columbus Ave.; Chicago, 2637 Michigan Ave.

Distributors in principal cities. Dealers everywhere



Makes Every Road a Boulevard

Hartford Shock Absorber

Controls your car's springs. Softens their action. Stops jolts and jars. Contributes to *real comfort.*

Hartford Bump Absorber

Saves lamps, fenders and radiator from damage through collision. *Absorbs the bump.*



More Than a Bumper

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY

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Horace M. Swetland, President
W. I. Ralph, Vice-President E. M. Corey, Treasurer
A. B. Swetland, General Manager

Business Department
CHARLES B. SHANKS, Manager

Editorial Department
David Beecroft, Managing Editor
S. P. McMinn Ray. W. Sherman
H. P. Blanchard S. T. Williams

Branch Offices
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6960
Detroit—95 Fort Street, West, Phone Main 1351
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"NORMA"
BALL BEARINGS
(Patented)

"A man is known by the company he keeps"—and a car may be known by the character of its electrical accessories, provided the observer is wise in the distinguishing marks of quality. In the matter of magnetos and lighting generators, current practice has provided a means of identifying machines of maximum dependability—which in turn identify cars of quality. That identifying detail is "NORMA" Bearings, adopted as the standard bearings in the high-grade magnetos and lighting generators used on cars of the better class.

Be *Sure*—See That Your Electrical Accessories Are "NORMA" Equipped

THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK

Ball, Roller, Thrust, Combination Bearings



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NASH Jeffery MOTORS

NASH dealers are making money because they have the complete line of Jeffery pleasure cars and trucks which are made right and priced right. Because the Nash line is a desirable line to-day, and because it promises much for the future, the Nash contract is in great demand.

Jeffery Sixes

Seven Passenger Touring Car,	$1465
Seven Passenger Sedan . .	1630
Roadster	1435

Jeffery Fours

Seven Passenger Touring Car,	$1095
Seven Passenger Sedan . .	1260

Jeffery Trucks

Rapid Service Wagon . .	$ 965
All-Purpose Truck . . .	1465
The Jeffery Quad	2850

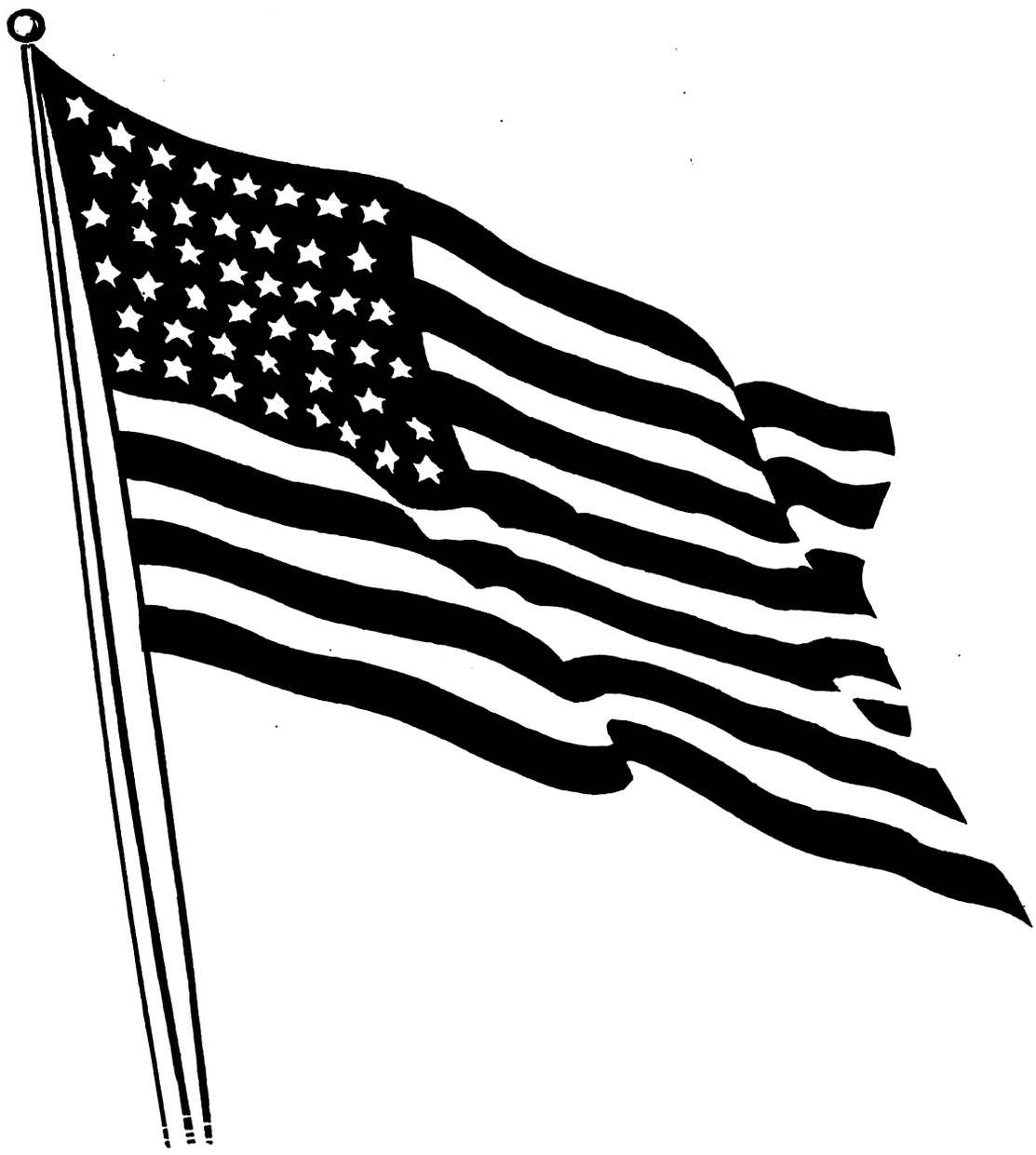
THE NASH MOTORS COMPANY. KENOSHA.WIS.

Manufacturers of Jeffery Cars and Trucks, including the Jeffery Quad

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MOTOR WORLD for DEALERS, JOBBERS AND GARAGEMEN

Vol. L | New York, U. S. A., Wednesday, March 28, 1917 | No. 13



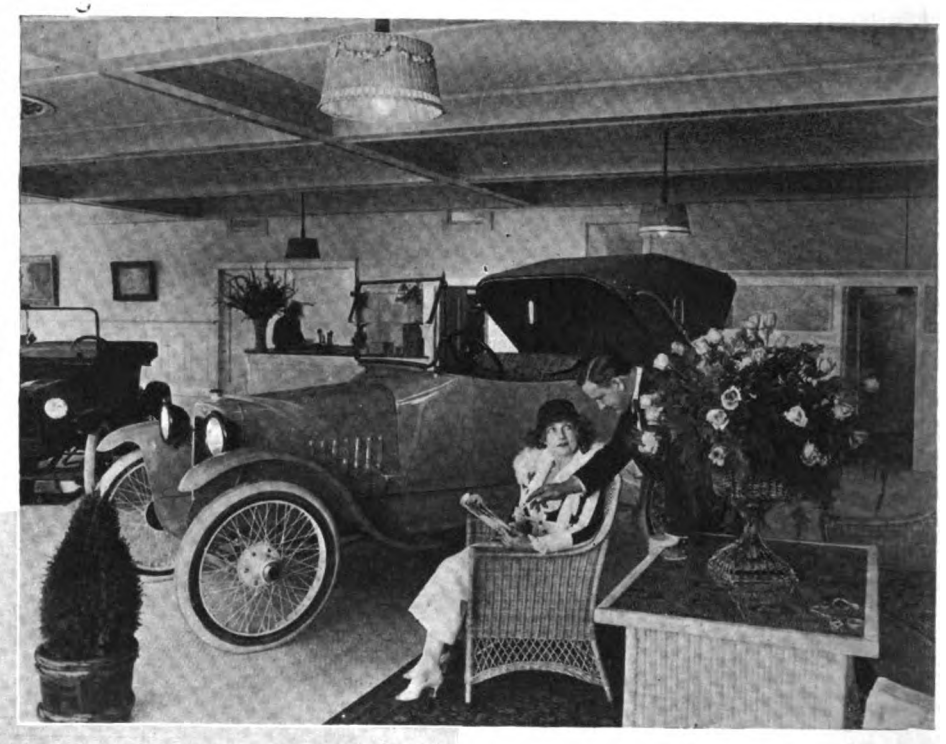
Then
1776

Now
1917

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"Fine Stores Draw Fine Trade"

So says Baldwin, and he built his salesroom accordingly





Above is the salesroom of the Saxon Motor Sales Co., Los Angeles, and below is its external appearance

"MERCHANDISING automobiles is not unlike merchandising other products of a manufacturer or even selling real estate," said James V. Baldwin, of Los Angeles, as he was receiving visitors at the new Saxon place on the night of the formal opening.

"Lots in the finest tracts are easiest to sell. The finest hotels draw the best business and the finest jewelry stores sell the greatest number of gems.

"It's the same with the automobile industry. People like to buy a fine car in an attractive automobile store."

The story of James V. Baldwin's whirlwind campaign with the Saxon line in southern California is a merchandising story in a class by itself.

James V. Baldwin was, and is, a Los Angeles real estate man. He still maintains two separate places of business and much of his time is spent at his real estate office, although he is at the helm of one of the most successful motor car businesses in California.

September 16, 1916, to be accurate, James V. Baldwin took over the distribution of the Saxon. His friends shook their heads knowingly. Some laughed. They thought that he was due to play a losing game, as he knew nothing of the automobile industry and the business of merchandising cars. But Baldwin knew that he had something on the ball and he put it over.

Past History a Handicap

The Saxon agency had been running wild in southern California. Two veteran dealers had thrown down their hands when they were just getting started and the Saxon was an orphan in Los Angeles.

Benj. Willebrands, Pacific Coast factory representative, looked in vain for another dealer who would take up the sale of the line. He gave up and went to San Francisco. There he met Andrew E. Baldwin, then a senior at Stanford, and the conversation worked around to business when Baldwin told the automobile man that his home was in Los Angeles.

College Had Started It

Young Baldwin conceived the idea of having his father take the agency and give him a job as soon as he finished college. The younger Baldwin persuaded his father that it was a cold blooded business proposition, this selling motor cars, and that if he could sell real estate he could sell automobiles.

The father took the agency and went into the game to win. The failure of the line in the territory made it hard at first, but it made the new dealer work harder than if the going had been good all the way.

First—A Manager

At 1128 South Olive Street Baldwin opened the Saxon home. He kept his name in the background and the company handling the car was announced as the Saxon Motor Sales Co. The first thing was to get a manager. Baldwin spent two weeks simmering down something like 100 applicants for the place,

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and finally decided upon Frank E. Wright, formerly with the Studebaker Corporation.

The first month fifteen cars were sold and delivered. The second month there were just fifty cars put out. From month to month the business grew until there were 116 cars put out in May. That was a signal for Baldwin to get larger quarters.

Next—A New Home

Larger quarters on "automobile row" were hard to find. But James V. Baldwin noticed a one-story white brick building at the corner of Olive and Twelfth Streets. It was being used by a vulcanizing plant and a used car shop, and both were willing to sell their leases.

Motor World Helped

Baldwin had been reading the dress-up suggestions in Motor World, and he decided to dress his new place up with all that was to be had. The brick shell was left standing, but all the rest of the building was hauled away in dump trucks.

The concrete floor gave place to a floor of tiling. The flat lines of the building were broken up by the addition of a few feet of brick. Some fancy work made the building look entirely new.

The main reason for Baldwin's taking the corner was that he wanted light from two sides. To get this he knocked out the side wall and put in plate glass windows. The wall windows of the front were taken out also and replaced by plate glass.

Getting a Setting

Reedcraft furniture and wicker shades were used to set off the interior of the salesroom. Heavy rugs were placed on the floor, oil paintings hung on the walls and potted plants were placed about the room. On both sides silk curtains were draped and handsome drab colored awnings were rigged on the outside. The interior was finished in hard wood, white enameled, and the entire building was whitened. The drab curtains and raised gilt letters set on black gave the only break to the white color scheme.

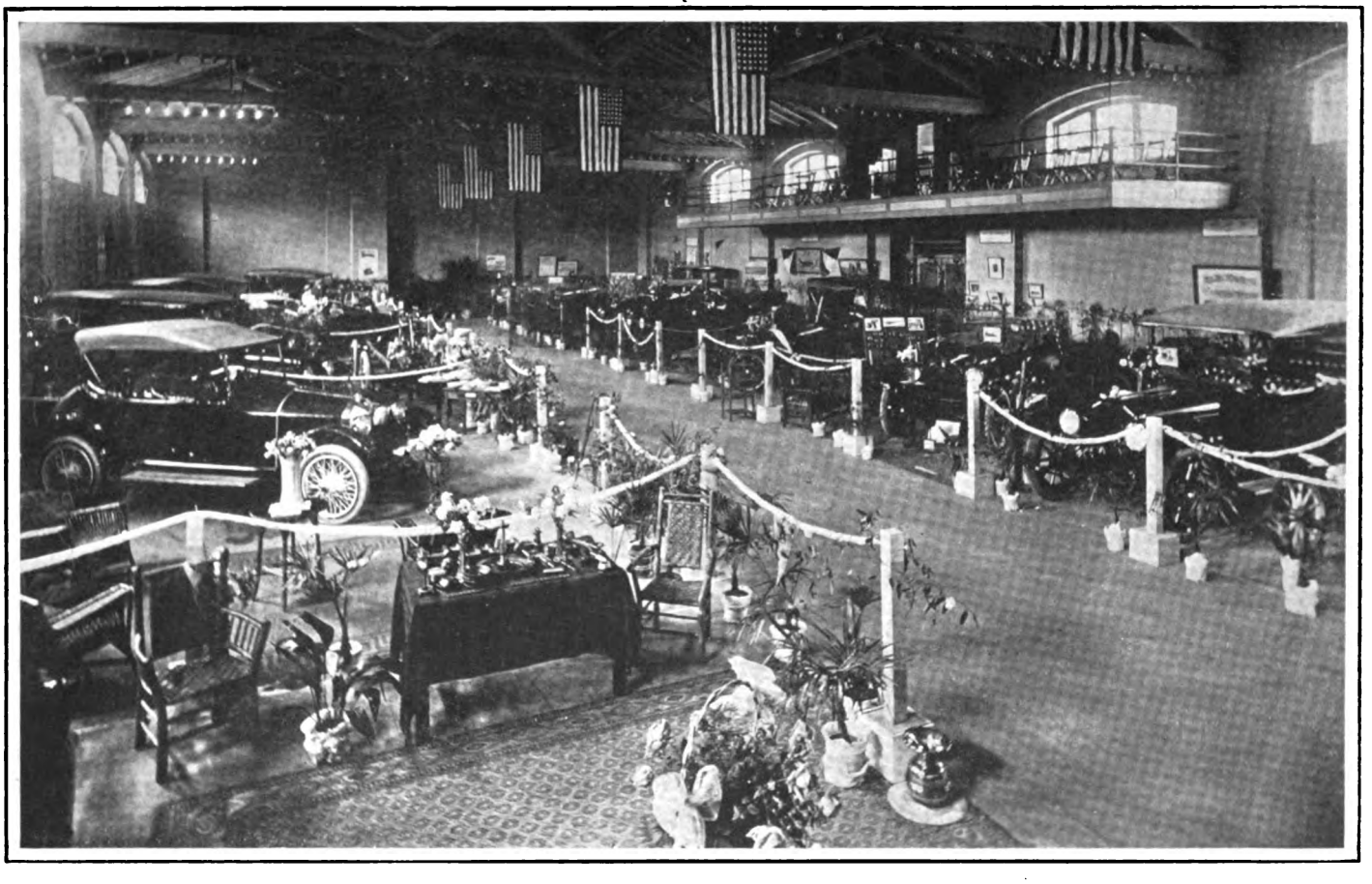
A space in rear was cut off and given over to the service department. The Saxon service department accepts no charge jobs. All the service work is done free. Charge jobs are sent to outside garages making a specialty of Saxon work. The service department is in keeping with the rest of the attractive plant. The same clean elegance is carried throughout the building.

After this work was completed, just $12,000 had been spent. But there was one more thing that was necessary. There was to be an electric sign. Another $1,000 was spent for this and the Saxon home was pronounced dressed up.

It Paid

Long before the place was ready for occupancy the Saxon sales force was doing business from the new location. The original location had been completely outgrown. But when the old building was finally dressed up and the salesmen started out with new energy, the sales records all were shattered. The number of cars sold and delivered during the month of June totalled 146. July was even better. At the close of business July 25 there had been 152 Saxon sales for the month, and there were others to go before the end of the month.

Columbia Throws Atmosphere into Its Show



Rugs, flowers and furniture supplemented the general decorative scheme in the show of the Columbia Automobile Dealers' Association, in Columbia, S. C., March 14-17. *Each exhibit was separated from the next by inexpensive but pretty posts and a rope, and to each exhibit was an entrance. The general impression was one of class*

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MOTOR WORLD
Used Car Price Record

Revised each week from reports furnished by Motor World Territorial Representatives

MOTOR WORLD has completed arrangements to publish every week a tabulation giving the prices at which used cars are selling in all principal cities.

Allowances made on used cars must be based on re-sale prices. As long as this principle remains unrecognized dealers will lose money on trades.

This USED CAR PRICE RECORD will cover a list of cars which are produced in greatest quantities and are handled by the greatest number of dealers.

It will be compiled from confidential reports. Motor World territorial representatives will obtain these reports direct from dealers.

Motor World USED CAR PRICE RECORD will be an accurate guide of current prices of used cars. It will be of inestimable value to thousands of dealers who heretofore have had no accurate information on the actual present market value of used cars *in their immediate territory.*

The used car problem is one of the biggest that dealers must face. It is daily becoming a greater problem because of increasing production and advancing prices of new cars, brought about by raw materials market conditions.

Stability has never been a feature of the used car market. Prices of used cars always have varied—sometimes widely—even in cities closely adjacent. Dealers in the same city have never had any guide as to the actual market value of used cars *during a current week.*

This has brought about a condition of instability and price-cutting.

The principal difficulty has been that a dealer in any given city has had no means of knowing the *current* market value of a particular make and model *in that city.* Prices on the same car in any other city or territory have not been of great assistance to him because values differ so greatly in different cities.

Philadelphia, for example, is an excellent market for a certain make of used car. Prices are higher there than in any other city. Boston is an excellent market for another make of used car, San Francisco for another, etc.

The prices these cars will bring in these cities are worthless to dealers in any other city, because the dealer in another city cannot get them.

He is getting what he can, but he has no means of knowing whether his next door neighbor may be getting more for the identical car and model.

Motor World USED CAR PRICE RECORD will give the used car market a degree of stability it now lacks by publication of current actual values, determined by the prices at which these used cars are selling.

The greatest foe to price-cutting is publicity. The prices of standard, advertised goods are not cut because the prices are known to everyone. Dealer Jones would be foolish not to get $2 for an article that is advertised to sell for $2 and that he knows everyone else is getting $2 for. It is human nature to get the maximum price possible, and where that price is widely published and everyone knows it, dealers will get it.

Motor World USED CAR PRICE RECORD will give publicity to the genuine market value of used cars in given centers. In this way it will stabilize used car values.

Prices on Used Models of

THESE CARS

will be given in the Record

Apperson
Briscoe
Buick
Cadillac
Chalmers
Chevrolet
Dodge
Dort
Ford
Franklin
Grant
Haynes
Hudson
Hupmobile
Jeffery
King
Maxwell
Mitchell
Oakland
Oldsmobile
Overland
Paige
Reo
Saxon
Studebaker

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The price a used car sells for in New York is of small interest to dealers in Chicago or Pittsburgh, or any other city. It is of interest only to New York dealers. Pittsburgh prices are of interest to Pittsburgh dealers.

Conditions are so different in different cities that no one blanket price can be set for a certain make and model of used car which will apply except in a very restricted area. Kansas City prices do not interest Denver dealers. Conditions in these two cities are widely different, and so are used-car prices.

For this reason a tabulation giving used-car prices in definite trade centers is needed. It is needed because used-car prices are essentially local prices—local to the community in which the sale is made.

One great factor of the used-car problem is that the owner trading in a used car more often than not is a better salesman than the dealer. The owner sells the used car before he buys the new car. He "sells" the dealer on the idea that the used car is of greater value than it is.

Motor World USED-CAR PRICE RECORD will help eliminate this trouble. A dealer who has difficulty closing a sale because the prospect insists on too big an allowance for his old car can show the prospect the actual value of the old car in the dealer's own center by Motor World USED-CAR PRICE RECORD.

Cars of the same make and model as the prospect wants to trade in for $450 may have been selling for $300. This fact brought to the attention of the prospect will bring him to reason. He can be made to understand that the dealer cannot allow him any such amount—that the car is not worth it to the dealer or to the prospect.

There are over 30,000 dealers in the United States directly engaged in the sale of motor cars. Every one of these dealers is vitally concerned in the problem as it relates to used cars.

Take the case of a car owner having a two-year-old —— model for which he wants to obtain a price of $900 in trade.

He approaches the dealer who sells a car, the list price of which is $1,200, and this car dealer attempts to kill the idea of $900 allowance and offers $550 instead.

He believes that he could take this car in at $550 and resell it at a price which would allow him to come out even or possibly make $50 profit.

The suggestion does not get very far with the car owner because he believes he is entitled to about $900 for the reason that the competitor of this dealer has already offered to allow him $850.

Now, then, if the dealer in question were able to show the prospective car purchaser that the prevailing price of the car and model he wants to trade in is $550 in a dozen or more sales centers throughout the United States, much of his trouble would be eliminated.

He would be able to exhibit an accurate report *which must be taken into consideration by the man who has the car to trade in.*

Motor World has long recognized that the used car presents a problem, possibly the greatest problem the dealer has to confront. We have tried to evolve a plan which would go a long way in the direction of a solution to this problem in order that the dealer might be the direct beneficiary.

The first tabulation, giving prices on used cars of the 25 biggest producers, will appear in the Summer Merchandising Number of Motor World.

Dealers, Attention

THE compiling of Motor World USED-CAR PRICE RECORD *depends upon the co-operation of dealers. We shall welcome this co-operation.*

Motor World Territorial Representatives are able, trusted editorial men and these men will collect the reports from which the tabulation will be compiled.

These men will be supplied with proper credentials. They will request the dealers in the principal trade centers to give them used-car prices on certain makes and models and will then transmit this information to Motor World.

The name of the dealer will invariably be held confidential; it will not be known except to Motor World's Territorial Representative and to Motor World.

Dealers are urged to extend this co-operation for the good of all. Remember, at least 25 dealers in every city will be asked to supply information for

Motor World Used Car Price Record.

This plan of serving dealers with definite data on used-car values throughout the United States is original with Motor World.

Many of Motor World's ideas for the advancement of merchandising and maintenance are being quite freely copied by other publications.

But because this idea is new, and because the feature has not yet appeared, it has not been copied YET.

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Along the aisles at Canton's show were white pillars topped by lights enclosed in frosted globes



JACK BARNES, manager of the Canton show

Many Country Prospects at Canton's First Show

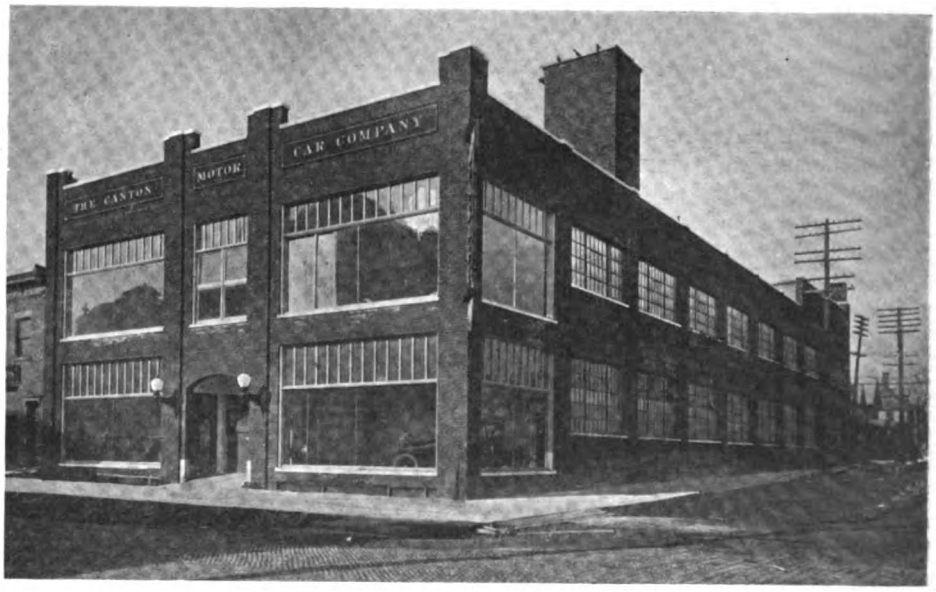
Ohio City's Exhibition Draws 20,000 People — Prettily Decorated—Dealer's Building Used

CANTON, OHIO, March 23—Not to be outdone by larger cities, Canton staged an automobile show March 7-11. It was Canton's first show, was held in the new fireproof building of the Canton Motor Car Co., under the auspices of the Canton Daily News, and was managed by Jack Barnes. Twenty thousand people attended during the four days, many of them from the rural districts. Inasmuch as the population of the city is only 65,000 the dealers are pleased with the attendance.

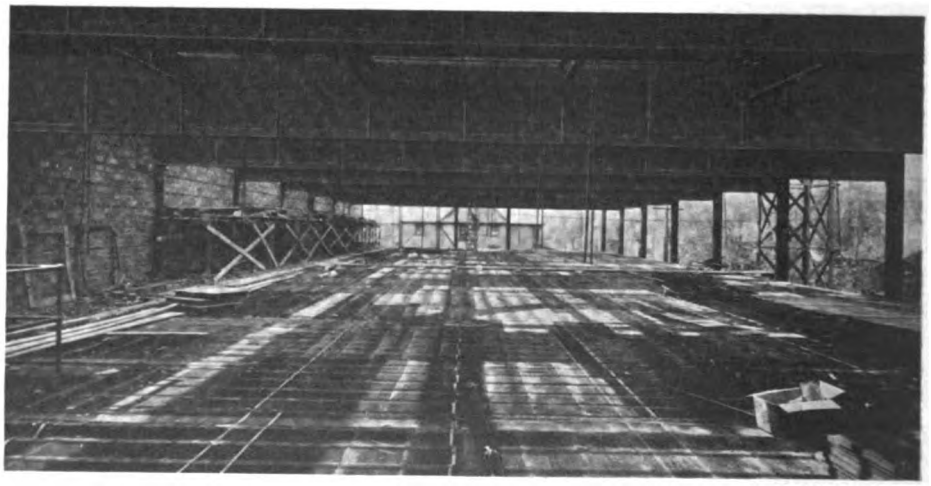
One hundred and twenty-five cars were exhibited—ninety-one pleasure cars, twenty-seven trucks and seven motorcycles. There was also an aeroplane and Canton had its first look at a gas-electric car. The floors were arranged in a colonnade design with large ornamental white columns at the top of each of which was an electric light and a white dome.

Southern smilax and wistaria blossoms were used in the decorative scheme. Uniformity prevailed on the three floors. Victrolas and phonographs furnished music.

There were smoking rooms for the men, rest rooms for the women, telephones and a public stenographer. The entrance of visitors was so arranged that they all visited all three floors. They passed from the first floor to the basement, were carried on an elevator to the third floor and then walked down the stairs. Admission was 25 cents. The show paid financially.



Two floors and the basement of the Canton Motor Car Co.'s new fireproof building were used for Canton's first show



This shows the first floor of the building in process of construction. There are no posts. Berger's metal lumber and metal lath are used, which lighten the load on the girders and make posts unnecessary. These products are Canton-made, by the Berger Mfg. Co.

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Leaks I Have Plugged

More Ideas for the

Summer Merchandising Number

WHAT leak in the profits of your business did you plug up during the year gone by? If you knew the leaks that thousands of other dealers or garagemen had discovered and stopped you could discover one or two in yours and stop them up, too.

This is one of the things the Summer Merchandising Number of Motor World, April 25, will tell about.

Motor World wants the personal experience of its dealer, garageman and repairman readers.

Will you jot down briefly below what some of the leaks you have discovered have been and how you have plugged them up?

One garageman we know of found his employees thoughtlessly giving over-measure in gasoline.

Another discovered his men failing to charge enough time on repair jobs.

Another discovered a big leak in failing to charge overhead against used cars.

Another cut down personal telephone calls.

What leaks did you plug last year?

Jot them down on this page and mail it to-day. If you prefer us not to print your name say so and we won't.

What leaks did you plug last year?

Dear Editor: Here are Three

Editor MOTOR WORLD,
239 *West 39th St., New York:*

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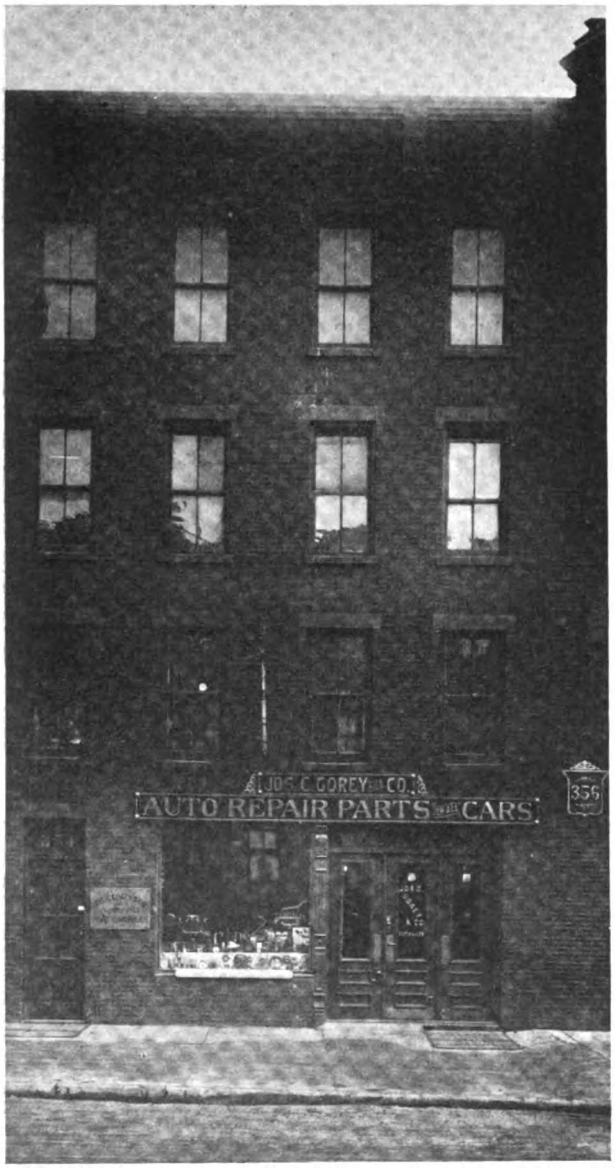
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My address.

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Keeping Stock Instantly Available

How One Firm Gives Quick Service To Orphan Car Owners



Above—Four stories bought by foresight, the home of J. C. Gorey & Co. The founder of this firm which bears his name knew a long time ago that there was going to be a big business future in automobile spare parts. He was right

EXPERIENCE and push have brought J. C. Gorey & Co. of 354 West Fiftieth Street, New York, to the point where it is now one of the largest motor car repair parts companies in the United States. The company now occupies a four-story and basement brick building with a total floor space of 11,250 sq. ft., but its development has not come in a day.

J. C. Gorey first became acquainted with automobiles as an errand boy with the Locomobile Co. of America in 1902. He was employed with a number of the concerns who were pioneers in the industry, and in 1910 he formed the present company with quarters at 358 West Forty-eighth Street.

Bigger business forced the firm to take rooms at 352 West Fiftieth Street in the same year. Shortly after this the company moved into its present location, and built up its large business of supplying new parts and giving expert service to motor car owners.

The company handles S. R. B. axles, Weston Mott axles, Spicer joints, Blood joints, Hartford joints, McCord Co. fans. It renders special service for Chalmers 1907, '08, '09, '10, '11, '12, '13, '14 models; Hudson 1909, '10, '11, '12, '13; Buick 1909, '10, '11; Cole, 1909, '10, '11; Ewing 1909, '10; Sultan 1908, '09; More 1909; Grabowsky, 1909, '10; Packard, 1909, '10, '11; Henry, 1910; Warren, 1910.

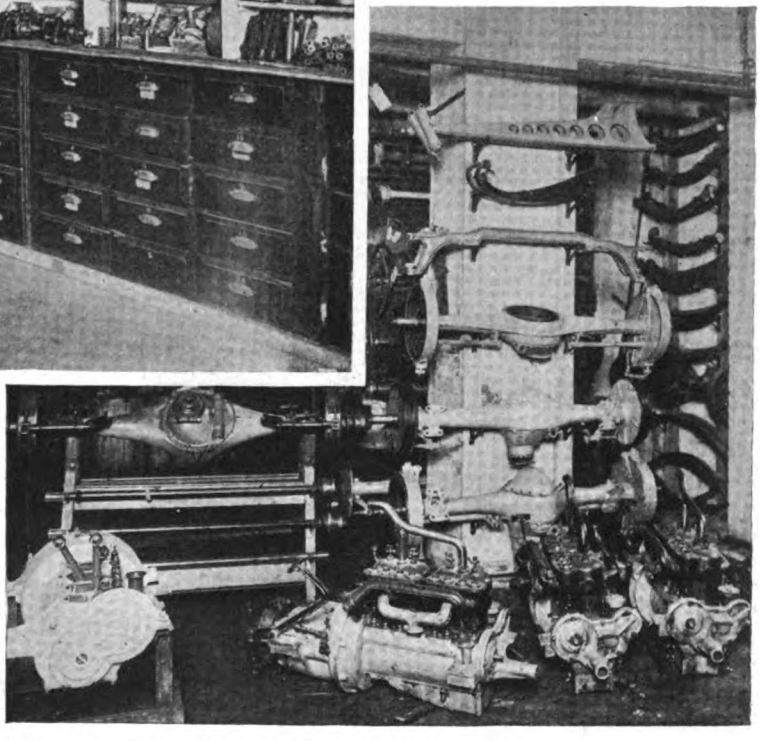


Right—When the salesman's away leave a silent display. Anyone with one good eye can see the chief parts which are handled by the Gorey company by looking at these sample cases in the sales room of the Gorey building

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Left—Everything is arranged in the Gorey stockroom so as to be immediately available. No hunting for parts when the customer is in a hurry. On the shelves are a variety of hub caps and other parts for orphaned cars



Right—Here is a line of complete new rear axles ready for immediate delivery in case of accident. Engines can also be supplied by the Gorey company for certain makes. The motors in the picture are made by Herreshoff



Left—Somebody's letter was delayed several minutes because the camera man came in at this point. The picture shows the correspondence office of J. C. Gorey & Co. When a customer writes in for prices his name is placed in an index file, and as bulletins are issued copies are sent to him. Modern office equipment is used to facilitate efficiency



Right—Here is a view of $7,500 or one-half of the Gorey basement which is stocked with heavy parts These are kept oiled with a special preparation to prevent rust

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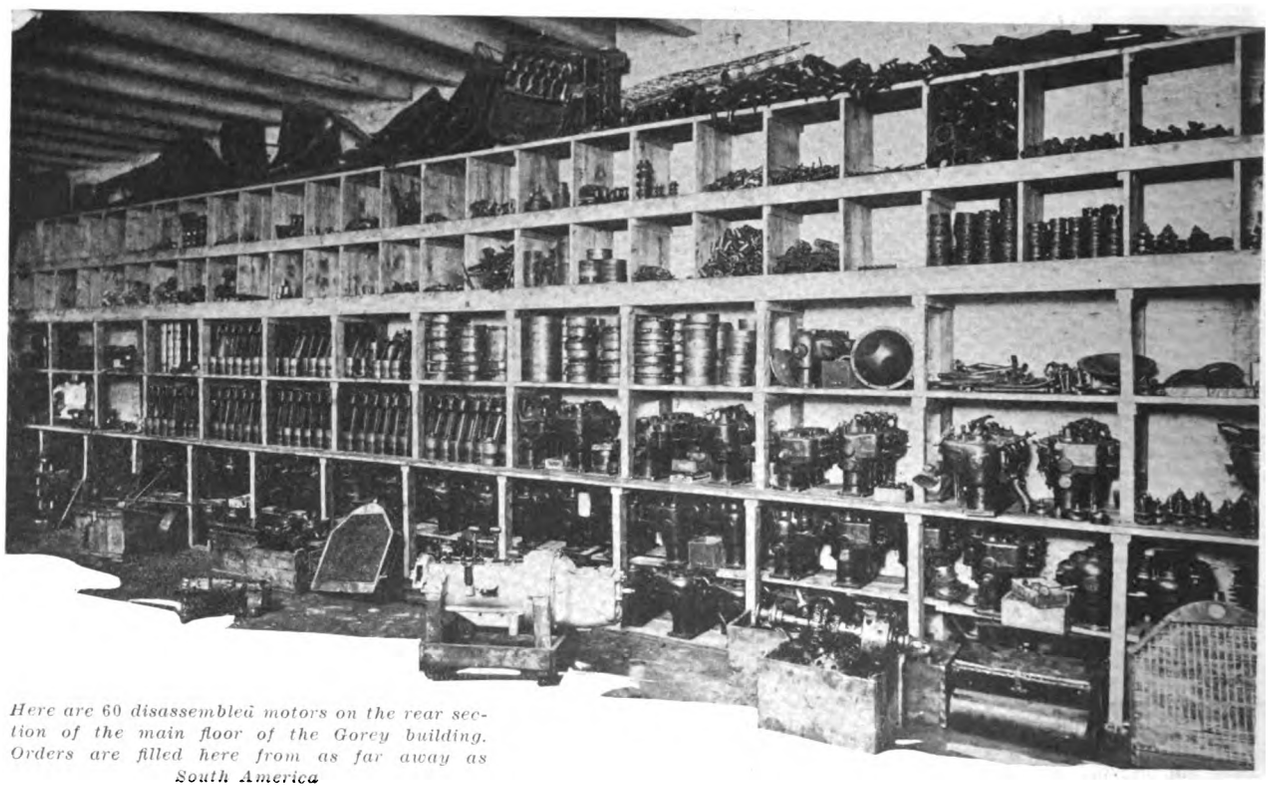
More Pictures of the Gorey Establishment

Right—Good traffic conditions are as necessary indoors as on the road. Walking into the picture you may find bearings, magnetos and carbureters to the right, bushings, universals and hub caps on the left





Left—Every story has two sides, and this is the left side of the main floor of the Gorey building shown above. Gears and pinions to fit 300 cars are provided here. A supply of hubs, pinions, transmission axles and springs is kept in this department

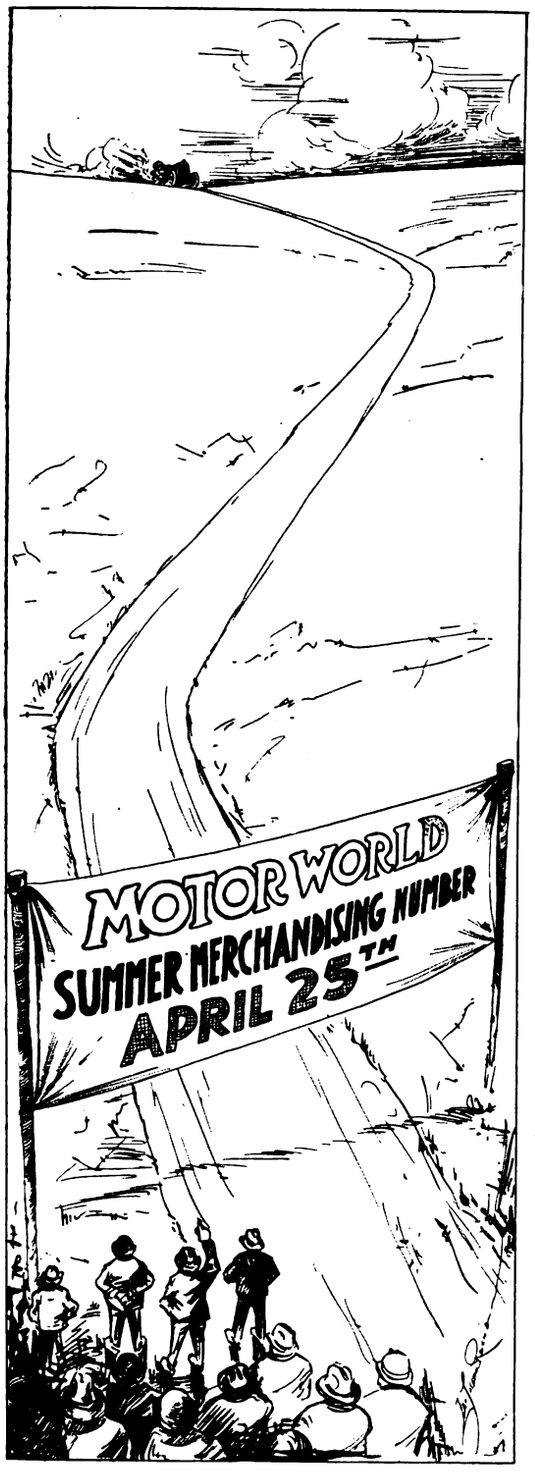


Here are 60 disassembled motors on the rear section of the main floor of the Gorey building. Orders are filled here from as far away as South America

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Get Set

Put Your Front In Order



IN order to begin the campaign you MUST BE READY! After the fight starts there is no time to bother with getting ready. You must do that NOW.

The fight for summer business is going to begin in a very short time.

Are you all set?

You can't expect to rank with the top-notchers and the go-getters unless you look the part. No matter how aggressively you go after business the customer is not going to be favorably influenced when he comes to YOUR place of business unless that place of business furnishes a fit atmosphere.

Get your place of business in shape now. Later you will have no time. You will be overwhelmed with sales work.

As a starter let us do one thing—NOW! Not next week, but NOW. Start things right away. Let us take up the matter of the front of the building. How does it look? Last summer's sun and rain and the past winter's rigor certainly have had their effect.

Get set!

If you have a white tile or stone front have it washed. If it is a painted front repaint it. If it is a brick front see that it is pointed up and not all run down.

Look over the borders of your windows. Make them right. Perhaps you have no good front windows. In that case now is the time to have some built in. Make that front look the part you are trying to play in your community. Have the best looking front in town.

And do it NOW. You'll be glad later that you did it.

GET SET!

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Accounting and Business System

Questions and Answers about Motor World's Simplified System of Accounting

By T. W. Snead

Here Is a Whole Lot of System Questions Answered for Frank Brown

If there is any question you wish to ask about accounting or business system this department will be glad to handle them for you. If you are using a Motor World Simplified System of Accounting by all means make this department your counsel in the conduct of the statistical end of your business.

System Editor: I intend to install the Motor World Accounting System, and would like some information on how to make the following entries:

I operate a garage, sell cars, oils and accessories, do repair work and welding. I am sole owner of the business as well as the garage building. I have my own electric light plant for lighting the building.

How would you enter gasoline, which is used in engine for the light plant?

How would you enter paying freight and express charges?

We send vulcanizing work to an outside firm. How would I enter this charge to customer when work is returned?

How would I enter tools bought for the repairshop?

How would I enter gasoline or extras on a new car sale?

How would I enter gasoline and accessories used for the demonstrating car?

Do you have a separate page in the back of the book for each liability?

How would I list the building in Table No. 3? Or would I charge the business rent and not list it as part of the business? I intend to run the business separate, paying myself a salary.

I am now using a McCaskey System with cash drawer attached. Can I still use this system for customer's accounts, as with that system the accounts are always posted to date.—FRANK H. H. BROWN, Osco, Ill.

We have carefully noted your letter and would suggest first of all that you secure the System Pamphlet, illustrating and describing the accounting system, and read it carefully before you install the system in your business.

In answer to your questions you would operate as follows:

All gasoline that you use in your plant would be charged to that department under which the lighting plant comes, similar to a charge made to a customer. Instead of charging this under Customers' accounts you would charge it under the All Other Accounts column to Expense, Lighting Plant, and your credit entry would be under the Income account, sale of gasoline. The only difference between this charge and one to a customer would be that you would charge it as cost without any added profit.

In paying your freight and express bills the credit entry would be to your cash account on Form 2 and the debit entry would be to the expense of the department that is receiving the goods or is shipping the goods.

I suggest that when you send work outside to a vulcanizing concern that you use an order blank and make an arrangement with your outside firm to bill you according to your order numbers to be sure that you do not pay your vulcanizing bills twice, and that when goods are returned to you from the vulcanizer that you treat them simply as a sale to your customer, charging the customer on the Debit side of Form 1 and crediting Income, Repairs, on the Credit side. At the end of the month when you receive your bills for the vulcanizing, these would be charged to Cost of Repair department on Form 2 and your check would be your credit entry, or if you did not pay the bill until the following month, you would credit Bills Payable, Vulcanizing Concern. This charge to Cost of Repair department would, of course, be deducted from your Income on Form 1, which would leave your net profit in this department of your business.

Gasoline or extras used on a new car sale would be treated similar to the entry in which you charged your lighting plant for the use of gasoline, except that this would be charged under the All Other Accounts column on Form 1 to Car Sales department Expense; likewise, gasoline and accessories used for your demonstrating car, all of which would be charged at cost without any added profit.

In the back of the binder, using the forms similar to forms that you use for your customers' accounts, known as Form 3, you would have a separate page for each asset account and each liability account, and the results obtained on Forms 1 and 2 at the end of the month would be posted to each account at the end of the month.

It would be much simpler, of course, to run your garage business separate from your real estate, but if you wish to carry this all under one head, you would list your building in Table No. 3 as an Asset entitled Real Estate and Buildings, listing it at a value which you would determine, based upon your tax assessment or in some other equitable way.

If you wish to charge the business rent, you would make an entry on Form 2 at the end of each month, charging under the General Overhead column, Rent Expense, and we will say, for example, that this would be $50. On the Credit side of Form 2 you would credit an account called Building Account. Whenever you have any expenses in repairing the building, or your insurance, taxes and so forth, instead of charging it to an expense account you would charge it to this Credit Account, called Building account. If the charges to this account were more than the credits, then you should increase the charge for rent, or, in other words, at the end of the year the credit to this account that you receive for rent should be enough to take care of the upkeep of your building, including taxes, insurance and so forth.

In paying yourself a salary you would, of course, charge this under the General Overhead column, and your credit would be your cash drawn on Form 2. In case you did not wish to pay your-

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self the actual cash, you would credit yourself personally under the All Other Accounts on Form 2.

If you thoroughly understand the McCaskey system for taking care of customers' accounts, it is perfectly feasible to still use this system and eliminate Form 3, customers' account sheets, in the system.

Charging Extra Parts

System Editor: We have just placed an order with you for your Simplified System of Accounting, and would like to ask you a question or two in regard to its operation so that we can open the book intelligently when it arrives.

If we purchase a car from the factory, say at $2,000, and include in the order a demountable top at, say, $300, and a cover at $5, and the freight on the shipment amounts to $30, would you put the total of the car, the top and the cover, $2,305, under Stock Accounts, and the freight, $30, under Expense, Car Sales? If so, then how would you handle the transaction if we afterward sold the car without, say, the top, or without both the top and cover, and kept the latter in stock?

Also, in selling a car which includes extra parts, cannot the latter be itemized in any way?—JOHN J. GIBSON CO., Buffalo, N. Y.

If you bought a car from the factory costing $2,305, the entry would be made as follows on Form 2. The Charge or Debit entry would be to car stock $2,305 and to Car Sales Expense $30, and your credit entry would be your check drawn, or $2,335.

Now we will assume that you have reached the end of the month in which you have sold this car without the demountable top.

When you made the sale, the entry was made on Form 1, and you placed in the Cash Received column on the Debit side $2,035 and under your Car Sales Expense column on the Credit side placed the same amount. You made a notation that it was Car No. .., and an additional notation, "Without Demountable Top."

You, at the end of the month, in order to find the cost of the cars that you have sold, will, of course, go through this Income column, Car Sales account, and get the number of each car that has been sold during the month. From this information you are then able to go to your Stock Record and find the cost of the sales. When you arrive at this car, which was sold without the demountable top, you would, of course, see by your records that the entire cost of the car was $2,300, and you have estimated the demountable top at $300. Accordingly you would enter this car at $2,000 instead of $2,300.

After you have found the total cost of the cars that you have sold you make an entry on Form 2, charging under Car Sales department the entire cost of all the cars that you have sold, and on the Credit side under All Other Accounts you credit Car Inventory Stock with a like amount. By this entry you take out of stock just what you have sold, and in the case illustrated above you will leave in that stock only the demountable top valued at $300.

Entering Credit Memos

System Editor: We return a new car to branch for credit. The branch sends us a credit memo.; then we receive a carload of cars, taking out this credit memo as part payment on sight draft, balance of draft by check or note. How would you enter this on Form No. 2?—CAMPBELL MOTOR CAR CO., Cedar Rapids, Iowa.

The entry that you speak of would be made as follows: When you return the new car to the branch for credit, you should have made a charge on Form 2 as follows:

Under All Other Accounts on the Debit side you would have charged your branch with the cost of the car and under Credit you would have credited this to your Car Inventory, Stock on Hand.

This charge would then have to be posted, of course, to the account with that branch, and when they ship you a carload of other cars this credit memorandum would be used by you as a reduction of the amount that you would owe them on the shipment of cars.

When you draw your check to pay for these cars you would draw the same as follows: On the debit side you would charge your Stock, Inventory of Cars, for the entire amount of the cars at cost, and on the Credit side you would credit the branch with the amount of the credit memorandum and the difference between the credit memorandum and the entire cost of the cars would be the amount of your check that you would draw in payment.

Another Credit Memo

System Editor: Kindly let us know how to make entry on simplified system of credit memorandums received from manufacturers on returned broken parts, etc., for credit.

Recently we had an occasion to make an unusual entry on the system as follows:

We had a new 1916 roadster left in stock. In September we sold a party a 1917 touring car of a more expensive make. In January the customer wishes to trade the 1917 car back for the smaller roadster of a less expensive make. We make the trade, which is rather unusual, and pay the customer $300 and take the 1917 touring car, as we are anxious to move the 1916 roadster.

Kindly let us know how to make this entry on accounting system. The roadster was in the car stock as $400.—WETHERELL'S GARGAGE, Exeter, N. H.

When your originally sold the touring car you made the usual entry, of course, on Form 1.

Later on, in January, you have an offer to buy that same touring car for $700. This you do by giving $300 in cash and a roadster that you have in stock valued at $400. The entry would be made on Form 2 as follows:

On the Debit side under Stock Accounts you would enter the car that you bought at $700, charging it to car inventory or stock on hand. On the Credit side you would place the $300 check in the All Cash Paid column and in the All Other Accounts on the Credit side you would enter the $400 to Car Stock, Inventory Account. By crediting your Car Stock with this $400 you take the roadster out of your inventory and by debiting your Car Stock with $700 you place in your stock the touring car that you purchased.

Charging Mechanic's Time

System Editor: In using the Simplified System of Accounting, I would like to ask how an entry of the following kind should be entered:

"Five hours' time wiring shop and cleaning tools."—CAIN'S GARAGE, Glen McIver, Roodhouse, Ill.

We assume that one of your mechanics has spent 5 hours of time in the shop cleaning tools, etc. We also assume that every time you put a job through your repairshop this job is accompanied by a time slip of some kind or an envelope containing the complete instructions for the job, whom it is to be charged to and so forth.

For example's sake, we will assume that the job has been completed and this particular job was cleaning tools, wiring the shop, etc. The mechanic will have kept his time on this slip and turned it in, similar to a job that he would do for a customer. Now, instead of charging this time to a customer and placing it in the Repair Department, Income, you would charge this under All Other Accounts on the Debit side to an expense called Repair Department, Shop Upkeep, and credit the amount under Income Accounts, Repair Department, placing the name and number of the job in your various columns.

You do not, of course, charge this at the same price that you would charge a customer, but simply make the entry at cost. That is, what it actually cost you for this mechanic's time.

Sign Your Letters

We frequently receive inquiries which are unsigned.

It is impossible for us to answer such letters.

Please see that all letters are properly signed and that the correct address is given.

If desired, names will not be printed, but we must have the name and address in every case.—Editor.

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THE LAW

As it applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions.
Always send copies of contracts, notes, etc., to which you refer.

By George F. Kaiser

Business With Minors Is Dangerous

Editor Motor World: Have been reading your legal department with much interest, but have not found anything that corresponds with my case. I have consulted two different attorneys regarding it, but their opinions differ.

In the spring of 1915 I sold a used cyclecar to a young man who was working on a farm near town for $195—$35 in cash and a note, bearing 8 per cent interest from date, for the balance.

Five months later, when the note became due, he paid principal and interest promptly. Later he had the car overhauled and had some new parts added, the total cost of which was $50.50, but as it was late in the fall and he was short of ready money, he could not pay the bill and the garage would not release the car until they received the cash.

As I had known this man for 2 years, had sold him considerable merchandise and considered him a dandy young fellow, in order to help him out I paid the bill and took a note and mortgage on the machine for the amount, the note to run for 5 months. When the note was due he advised me that he was still short of cash, but that he would be able to pay it within a month or so, and if I could wait it would be a great favor to him.

Asked for Settlement

In the meantime I went away and allowed the matter to go for about 4½ months. When I returned and asked for settlement he advised me that the machine was in a shed uptown. and that I could have it. I looked it over and found that the tires were ruined (and one gone), several parts were broken and some were missing. When I asked him what had become of the parts he told me that someone had stolen them, that he would not pay the amount due and that I could take the car, or do anything I wanted with it, but that I would not get any cash out of him. The only reason that he would give me for not paying was that he is a minor and not responsible for his contract.

I gave the case to the mayor of this little town to collect, but be balled it all up and made a mess of it. He took charge of the car and tried to garnishee the fellow's wages without a judgment and, of course, served papers on him and on his employer. The employer held his money for some time until the young man hired an attorney and had it released. The mayor tried to sell the car but received only one bid of $15, and this later was refused.

When I returned to town again and found what had been done I gave the bill to an attorney to collect. He took my bond and garnisheed the man's wages again and now has the case on docket for the next term of court, suing him for the amount of note, $50.50, interest at 8 per cent from date and all expenses.

Sues to Annul Note

This young man's attorney has filed a countersuit for annulment of note and mortgage and return of all money paid me before for machine, etc., the plea being that he was a minor at the time of transaction. He has no relatives in this part of the country; any that he may have are in New York or some eastern State.

He came to Iowa in 1910, and told me when I first knew him that he was 17 years of age, that he always worked, drew his own wages and spent them. To my knowledge he had bought two motorcycles and one bicycle before this transaction, and from his appearance you could not tell that he was not a man of 21. I have not been able to verify his exact age, however, as no one seems to know very much about him.

What chance have I for collecting this debt? Can he collect the money paid me previously? Did I have any right to take charge of the car when action was commenced against him?

His only plea is that he is a minor and if the court considers this in giving him judgment it would give him, and all other minors, a helping hand to avoid paying their debts and to defraud other people.—Mark J. Howell, Cedar Rapids, Iowa.

About a year ago I answered an inquiry of another Iowa dealer, which was in all respects similar to yours. At that time I said and I repeat now that in Iowa and in practically all the other States it is impossible for a dealer to recover from a minor the money due him in a case of this kind.

The contracts which minors may enter into under authority or direction of law or in order to do what they are likely bound to do are valid, but as garageman or dealer is unconcerned with contracts of this kind, the safe thing for him to do is to decide that so far as he is concerned a contract with a minor is too serious a thing and therefore refuse to deal with minors.

Some contracts are held to be absolutely void and unenforceable, as, for instance, those which the courts decide are without doubt prejudicial to the minor. The great majority of contracts made with individuals, however, are neither good nor void, but are what are legally termed voidable, and may be either good or bad, according to the circumstances of each particular case.

In the case of voidable contracts a minor may decide, when he becomes of age, whether he will be bound by the contract or whether he will disregard it, because of the fact that it was made when he was under age.

Some Minors Are Honest

If the minor is inclined to be honest, he will probably pay up. If he is otherwise inclined, he will refuse to pay. The dealer can do nothing when the minor makes up his mind this way. If he refuses to pay there is no relief for the dealer.

In an old Iowa case it was decided that where the court could see the contract was for the benefit of the individual, as for necessaries, it was good. That where the court saw that it prejudiced him it was void, and that in other cases where there was a question as to whether it was beneficial or prejudicial it was voidable. This was the case of Green vs. Weilding, 59 Iowa 679, 13 N. W. 761, 44 Am. Rep., 696.

Under this decision dealers in Iowa would be unable to recover any money due them under a state of facts like those set out in the inquiry above. The notes would be valueless and the dealers would have no right to a judgment, garnishee or otherwise, unless they could induce the young man that there was a moral obligation on his part to pay the bill.

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The thirtieth in a series showing

Dealers Who Have Made Good

R. KNOX ROBERTS, president and general manager of the North Pacific Oakland Co., Seattle, hails from Missouri, but has been on the Pacific Coast since 1900, and was one of the victims of the big San Francisco fire. The smoldering ashes of the Golden Gate City left him "broke" but undaunted, and hardly had the removal of the débris commenced than he entered the automobile field.

His first venture with the Tourist, manufactured in Los Angeles, was unprofitable, but it took him only two months to "get out from under." In the latter part of 1906 he joined "Charlie" Howard's organization, which was then marketing the Buick in San Francisco on an extremely small scale. At that time the employees of the Howard Automobile Co. consisted of three people, and the territory was limited to northern California.

The sales for the first year amounted to about $350,000. With Roberts as general manager the development and growth of the business was extraordinary. In 1908 140 people were on the payroll and the Los Angeles territory was taken over, and in 1910 the Portland branch, serving the Pacific Northwest, was opened.

When Roberts resigned as general manager of the Howard Automobile Co. in 1914, after 8 years' continuous service, the working force had been increased to cover 200 and the company was doing a total annual business exceeding $5,000,000.

In 1914 the General Motors Co. selected Roberts to perfect a sales organization for the Oakland in the territory west of Denver and he divided it into three distributing centers and selected the Pacific Northwest, consisting of Washington, Oregon and northern Idaho, as his particular field of endeavor.

He entered the dealer field, organized the North Pacific Oakland Co. and has increased the sales from about 50 cars in 1914 to 1200 for this year.

Roberts' business associates attribute his success to his intensive methods. An elaborate digging-out-prospect and follow-up system enables him to keep his organization in touch with practically every prospect who is in the market for a car selling around Oakland prices, and to use his own words, "I have a dragnet out to catch every man and woman who wants to buy an automobile which sells at Oakland prices; the dragnet does not SELL them all but it SEES 99 per cent of them."

Private offices are for the use of stenographers and bookkeepers in Roberts' establishment. His desk is in the main salesroom and he finds time to see everyone and anyone personally. He has two hobbies, System and Hardwork, and a decided antipathy for "bench warmers."



R. Knox Roberts

Seattle

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Queries Answered

WE shall be glad to furnish information to anyone free of charge, but please be careful to give all the facts bearing on the matters you desire information on. All inquiries are answered by mail whether they are published or not, so kindly do not fail to enclose a two-cent stamp and your correct name and address. Please be sure to write plainly.

Neat Typewriting More Important Than Attractive Letterhead

Editor Motor World: We sell the Chevrolet, handle tires and accessories, and do repair work, also storage. Have you any suggestions as to the above letterhead?—C. H. Ferguson, The Colony Garage, Colony, Kan.

Answer.—Fig. 3 shows a letterhead which we believe you will find preferable to the one you have, although yours is not bad.

You must appreciate that a letterhead in itself is not sufficient. You must also have a neat letter. This requires a typewriter and a girl to run it. She will not need to know stenography unless your correspondence is rather heavy.

You will find that it will pay you to have this girl as she will be able to do much detail work which you now have to do yourself, and then you will be free to concentrate on the more difficult work you have. You can spend your time getting customers for your garage and repairshop and can figure up new ways of increasing your accessory sales; you can design better equipment for your repairshop in the way of small tools and the like, in other words, it will leave you free to bring all the departments of your establishment to the highest state of efficiency, and we believe that this will well be worth the salary of a girl.

Why don't you try it for a few weeks, and if you decide that your business is too small to stand this expense, you will not be much out of pocket anyhow?

Racing Car Lubrication by Pressure

Editor Motor World: We would like to know how the extra supply of oil is delivered to a racing motor.

We note the minute the mechanic starts to use the hand pump for an extra supply of oil that the motor begins to smoke, and are led to believe that the oil must be shot up in the piston and on the side walls of the cylinder by jet or small opening in a pipe and that there must be a jet to each cylinder, or is the extra supply merely pumped into the oil reservoir raising the oil level until the motor smokes?

Do they use a suction pump to lower the oil level in case they want to stop for anything so the plugs will not become fouled by excessive oil which the average motor will not stand for at low speeds?

Please explain in detail the oiling system in general use in the racing cars.—Rogers Garage & Light Co., Jackson Center, Ohio.

Answer.—Additional lubrication for racing cars is obtained by injecting oil into the crankcase. This is usually done by having a tank of oil at any convenient point on the car, with a pipe running to the crankcase. Then there is a hand air pump on the dash which is operated by the mechanic, the air pressure forcing the oil to the crankcase.

It is not usual to provide any means for draining off excess oil in case the engine is suddenly stopped or slowed down, although in some cases the drain cock in the bottom of the crankcase may be opened or closed from the dash. This drain cock, of course, being connected to a stand pipe in the crankcase so that only the excess oil is drawn off.

Oxygen Successful If Properly Used

Editor Motor World: I would like to have your opinion on the oxygen method of removing carbon. Does this method injure any parts of the gasoline engine? Should the valves and spark plugs or just the spark plugs be removed? Is there any danger of warping the pistons?—John C. Raymer, Reardan, Wash.

The oxygen process of removing carbon does not harm the cylinders in the least.

It is preferable to remove the valves and spark plugs if possible, so that the oxygen flame may have free play on the carbon and in this way eliminate every bit of it.

Unless the carbon is completely removed, the process is not satisfactory because the minute quantities which re-

STUDEBAKER WIRING DIAGRAMS

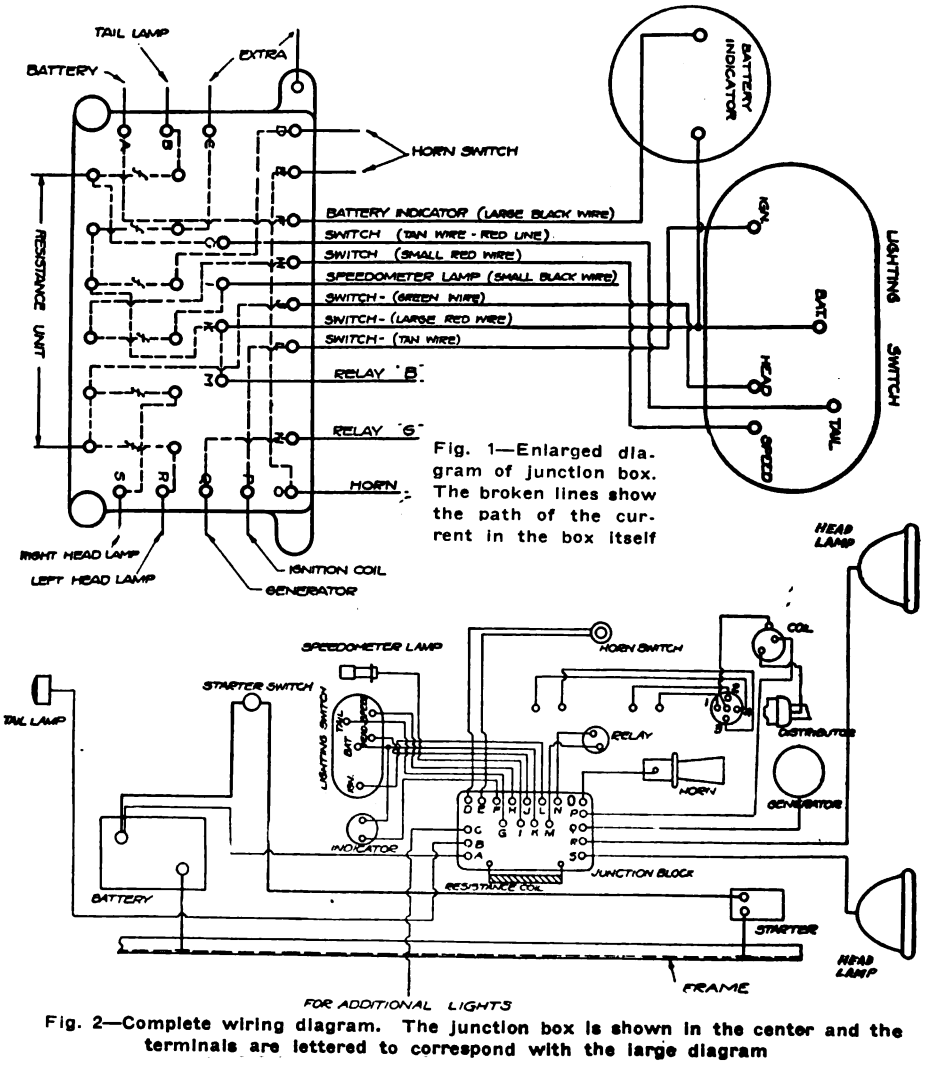


Fig. 1—Enlarged diagram of junction box. The broken lines show the path of the current in the box itself

Fig. 2—Complete wiring diagram. The junction box is shown in the center and the terminals are lettered to correspond with the large diagram

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main quickly become incandescent because all the oil has been taken from them; the result is pre-ignition.

Properly used there is no danger of warping the pistons because the oxygen itself will not burn, in fact is incapable of burning. The oxygen merely supports combustion of the carbon. Remember this, oxygen alone cannot burn, it merely supports combustion.

You realize, of course, that you must not use acetylene with the oxygen or you most certainly will ruin the engine. The oxygen is to be used alone.

It is necessary to remove every vestige of carbon or the small particles which are left will soon collect more carbon and the work will have to be done over again. To insure a thorough job it is advisable to wet the surface with kerosene or cylinder oil before beginning, the oil supplying the means for carrying the flame from one isolated carbon spot to another. If the oil or kerosene is all burned before the job is finished more should be used.

Nine Questions on Automobile Engine

Editor Motor World: Will you please furnish me the following information:

1—The effect of retarded spark?

2—Is it wise to readjust the float?

3—The ratio of air to gasoline for lean mixture? The ratio of air for rich mixture?

4—Does lean mixture have tendency to overheat and why?

5—On an average what percentage of raw gasoline goes in the combustion chambers?

6—What percentage of gasoline is not utilized in combustion.

7—Does gasoline and air produce wet or dry combustion?

8—What is the meaning of torque?

9—The cause of water sometimes forming in the sump of an automobile motor?—Inquirer.

Answer.—A retarded spark delays combustion and overheating results because the time the heated gases are in contact with the cylinder walls is increased.

2—It is only wise to readjust the float provided the float requires readjustment.

3—The ratio of gasoline to air for a good mixture is 1 to 11 by weight.

4—A lean mixture has no tendency to overheat, but a rich one does because combustion is slower.

5—It is impossible to state what percentage of raw gasoline goes into the combustion chamber because there are so many conditions affecting this, in each individual case, but a good average might be 1 per cent.

6—The percentage of fuel not utilized in combustion might be 5 per cent.

7—We do not know what you mean by wet or dry combustion, unless you mean that steam is formed as a result of the combustion. This occurs when gasoline and air are burned.

8—Torque means merely twisting or turning effort.

9—Water in the sump of an automobile engine is usually due to the condensation of the steam which leaks by the piston, the steam being formed by the combustion of gasoline and air. In rare cases this trouble may also be due to leakage of water from the cooling system.

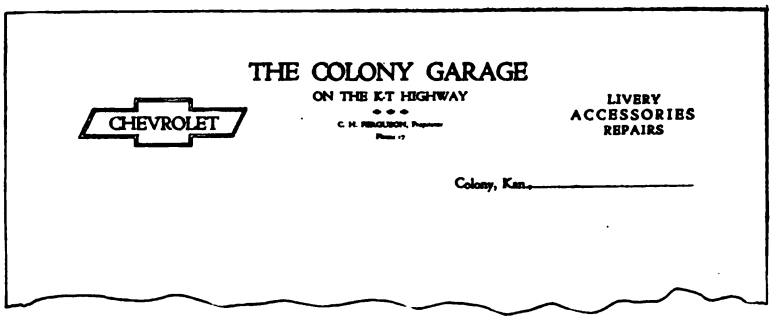


Fig. 3—Letterhead with type neatly arranged and with the weight of type nicely balanced each side of the center

Battery Grids Nearly Pure Lead

Editor Motor World: In one of his leisure moments the foreman of our battery department melted some battery plates, both negative and positive. When the melted stuff was poured into a cooling mold the result was a white metal or perhaps a composition of metals. Will you please inform us what the composition is?—Havre Auto Co., Havre, Mont.

Answer.—The metal you speak of is practically pure lead, and is sold as such. There is a certain amount of antimony mixed with the lead because this metal is used as an alloy to make the grids hard and strong. The paste in the plates becomes pure lead when they are melted up.

Wrong Valve Timing Causes Knock

Editor Motor World: Would you kindly explain the cause of the pounding and clatter of a motor caused by the exhaust valve opening too early?—George K. Shore, Chicago.

Answer.—There are only two possible explanations for the pound which you describe. One is that the incorrect setting causes missing, and under some circumstances missing will produce a pound which sometimes is very severe. The other explanation is that when the exhaust camshaft was thrown out of time the ignition was also disturbed, so that the spark occurred too early and produced an ignition knock.

Install Oversize Piston Rings

Editor Motor World: If in putting in a .0025 over size Ford piston, the piston fits snugly. Should the cylinder need to be overlapped, providing that the cylinder is not noticeably untrue?

If the cylinder needs lapping, how would I make a tool for this work? Kindly give me any other information pertaining to this that you think necessary. Would also like to know where I could get some good books on automobile repairing.—E. J. McCarty, McCarty's Garage, Glenn, Mich.

Answer.—There should be about .003 clearance between the pistons and the cylinder, and if you put in an oversize piston and the clearance is less than this amount the cylinder should be lapped.

This is, of course, assuming that the cylinder surface is in good condition, or, rather, fairly good condition. If it is extremely badly scored or all cut up, it may be necessary to rebore it.

There are complete directions on lapping cylinders and rings on pages 46 and 47 of the Feb. 21 issue. A copy of this issue may be obtained from our circulation department.

Studebaker Starting and Lighting System

The starting and lighting system employed on both four and six-cylinder Studebaker is the same. It is a two-unit Wagner, with grounded return wires, Figs. 1 and 2. The generator begins to deliver current at 10 m.p.h. and reaches a maximum at 18 m.p.h.

If the indicator fails to show charge at the proper time, the chances are that the commutator is dirty and it may be cleaned by using 00 sandpaper on it, with the engine running. When the surface is bright wipe it with a dry cloth. Also wipe the brushes with a soft cloth. Do not attempt to oil the brushes as they are self-lubricating.

Under no circumstances should the adjustment of the brushes be changed. This is an expert's job.

If for any reason the engine must be operated with the generator disconnected from the storage battery, be sure to connect the terminal of the generator to some point on the metal frame of the generator or engine, using a piece of copper wire.

The correct operation of the relay depends on its being firmly fastened to the dash. If the relay should show discharge, when no current is being used the contact points are probably stuck.

The generator should be oiled with a few drops of light machine oil every 1,000 miles.

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GARAGES
SHOWROOMS
REPAIRSHOPS

SCIENTIFIC CONSTRUCTION

By Harold F. Blanchard

A Showroom With Corner Advantages

Open Entrance at Each Side Gives Better Light, and Display for Cars

EDITOR Motor World: Last summer you were kind enough to give us the layout of a garage 65 x 130 ft., which we were contemplating building.

We were unable at that time to go ahead with our plans, but as soon as weather conditions permit, we expect to erect a two-story building, 130 ft. deep and if possible, not to exceed 60 ft. frontage. However, the frontage will depend entirely on your plan, as we are desirous of being able to use all available space, so consequently we leave it to your judgment and are willing to make it a few feet larger or smaller as you may suggest.

I have inclosed a sketch of the ground, and as the property now stands, the lot is 120 x 132 ft. We can get any amount of frontage desired, but I do not think that present conditions would warrant us putting up a building to exceed the above dimensions.

We want the building to have a showroom, in which we can show at least two cars, a storeroom for tires and accessories, an office for general work and possibly a private office. Also a stock room, battery room, wash rack and toilet. We expect to have a repair shop and the rest is to be used for storage.

We want to use a ramp, if you think it is advisable, as it is cheaper to install than an elevator and has practically no upkeep. Eventually the building will be built up on both sides, so we can not put windows in the side walls.

Thank you for past favors, and also for the many helpful suggestions that we have received from Motor World.—C. S. Sapp & Sons.

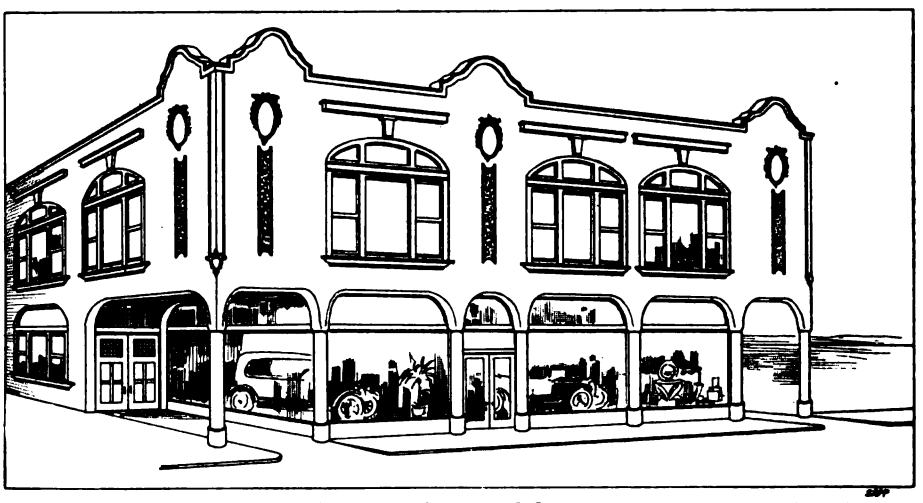
Sixty-five or 70 ft. Wide

Answer.—Sixty-five x 130 is a very attractive size for your building provided you do not object to placing two rows of cars one side of the aisle and one row on the other. Of course, you know, there is no real objection to this arrangement provided the cars in the back row are those which go out late in the morning, and this can be determined by asking the drivers when they come in at night.

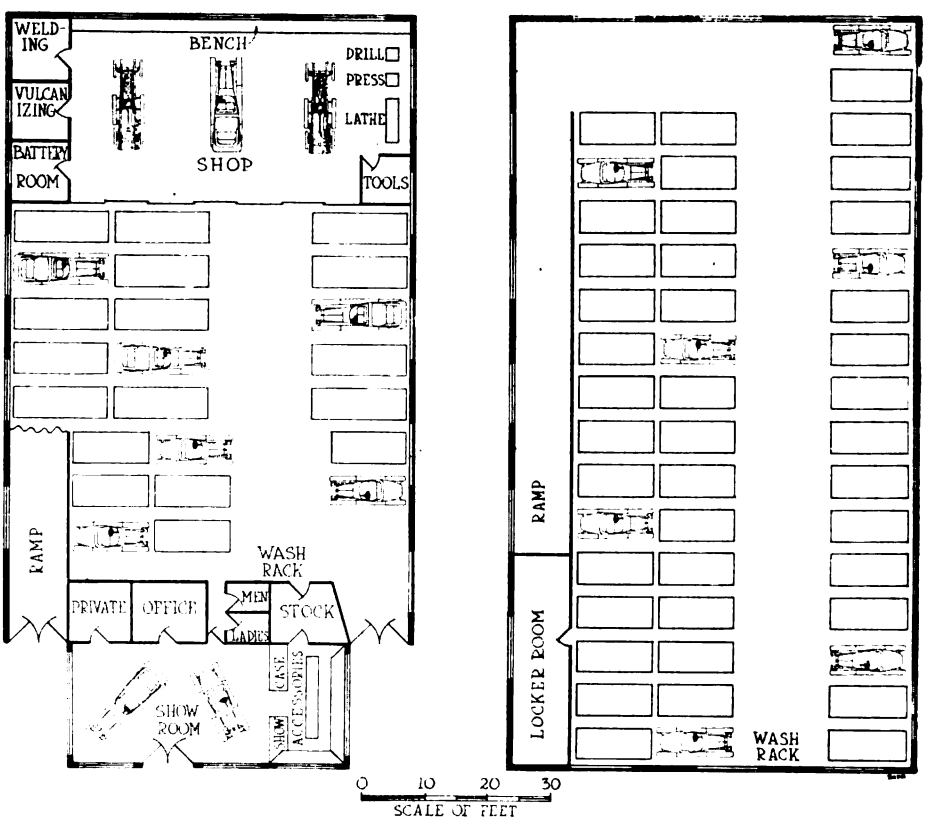
The second floor is a little bit narrow for storing three rows of cars unless the cars are very short ones such as Fords. Consequently, for the layout we have selected it would be better to have the building 70 ft. wide. If you desire to store just a single row of cars each side of the central aisle on both floors, it is not advisable to make the building over 55 or 60 ft. wide, but this would not change the layout except that it would make the building narrower and eliminate one row of cars on each floor.

There is no objection to the ramp and everything is in its favor for a layout such as yours.

With the entrance to the ramp and the garage on opposite sides you might have plate glass windows at each side of your showroom, thus giving a much better display to your cars, giving you more light and practically all the advantages of having your building on a corner.



At the left is the entrance to the ramp; the ground floor entrance is at the right. Naturally, the open construction gives a better view of the showroom, and the cost is no greater



First floor plan at right and second floor plan at left. The building is 65 x 130. The second floor is narrow for storing three rows of cars unless they are very small

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Terra Cotta Attractive and Durable

Architectural terra cotta is permanently durable and is made in any desired color or combination of colors. It is only slightly subject to weather, and a simple cleaning down with soap and water will restore its original freshness.

A clean, delicately modeled and colored facade will give even a small building prominence in any neighborhood, and prominence is a great asset for a building of the character illustrated.



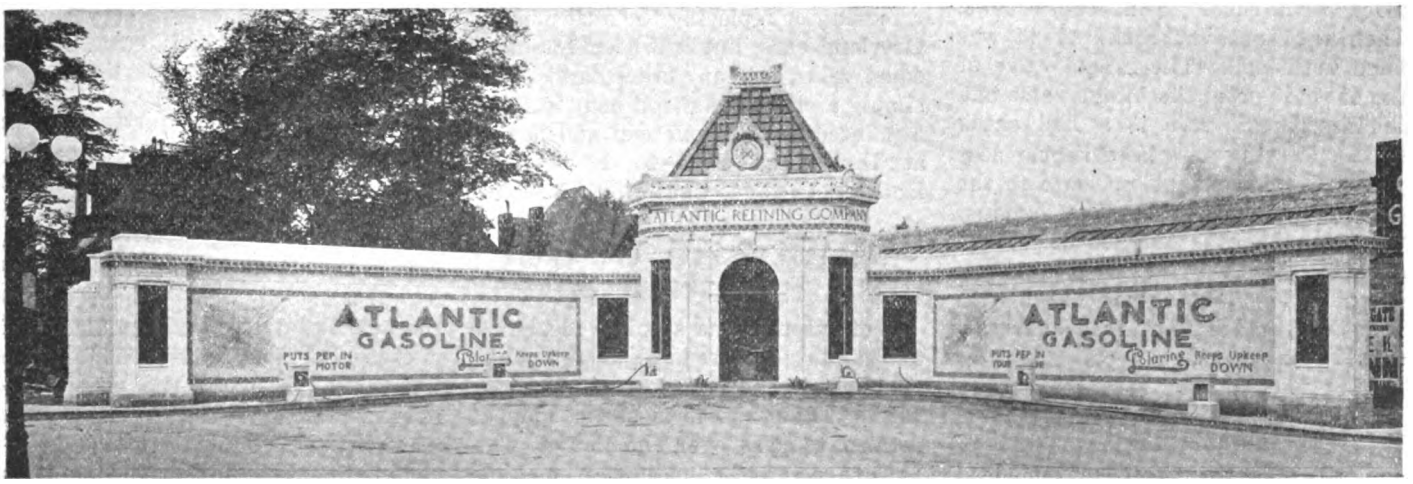
A brick building with entrance, windows, trim and cornices of matt glazed terra cotta—Stoddard Dayton Garage, Chicago, Ill.



Cadillac showroom and service station in Cleveland is entirely of cream matt glazed architectural terra cotta with letters of the name panel brown terra cotta



Another example of white matt glazed architectural terra cotta—Brandeis Auto Sale Co., Chicago, Ill.



A really beautiful filling station constructed of cream matt glazed terra cotta with green glazed roof and ornamental features in various colors. The letters of the name panel are in red—Atlantic Refining Co. gasoline station, Wilkinsburg, Pa.

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Repairshop Shortcuts

From The Motor World Roadman

(No. 1114) STOCK BIN MARKER

This stock bin marker permits ready location of any bin in the stock room. It is a sheet metal tag, bearing the number of the bin to which it is attached. As it projects out into the aisle, and is large enough to be easily read, the location of any desired bin may be seen at a glance.—Packard-Missouri Co., St. Louis.

(No. 1115) BEARING RACE PULLER

This puller was designed to remove the bearing race in the torque tube of the Marmon. In form, it is a gear puller, with the toes turned out, instead of in. These toes are caught beneath the lower edge of the race, and the pressure applied through the screw to a bar placed across the tube mouth. —Nordyke & Marmon Service Station, St. Louis, Mo.

(No. 1116) AIR COMPRESSOR

A serviceable air-compressor was made out of an old one-cylinder, air-cooled stationary engine with very little work. In order to raise the compression pressure it was necessary to minimize the clearance between cylinder head and piston. This was done, first by fitting a conical wooden block to the piston head and holding it in place with three ¼-in. cap screws. Then the space surrounding it was filled with lead. The intake valve of the engine is still the intake valve and the discharge valve is a ball check valve operating on a hard rubber seat in the discharge pipe, as close to the cylinder as possible. The exhaust valve opening was plugged up and all excess fittings were removed from the engine. The piston was fitted with step rings and a force feed oiler was substituted for a drip type. The compressor will fill a 16 x 48-in. tank to 158 lb. in 25 min. with a 1-hp. engine, but a 2-hp. would be better. The bore and stroke are 3½ x 3⅝ and the speed is 225 r.p.m.—M. A. Porter, Farrar, Iowa.

(No. 1117) BATTERY CHARGING CONNECTION

When charging storage batteries, a quick and satisfactory connection may be made by driving a tack into each of the terminals to be connected, and using a No. 18 steel wire for the connector. This connection possesses a further advantage—if an overcharge be applied, the steel wire will become heated and break the circuit.—Vesta Service Station, St. Louis, Mo.

(No. 1118) BODY HOISTING

Closed bodies may be removed without strain by the aid of the hoisting cradle illustrated. Two cross pieces are attached to separate chain hoists and are so spaced that they hang 2 ft. from the ends of the body to be removed. First one end of the body is pried up, and a lower cross-member slipped beneath it. Then the other end is raised, and the other lower member put in place. The steel stirrups are then used to attach the lower and upper cross pieces, after which the body may be removed.—W. A. Terrgeon, Packard Service Station, Chicago.

(No. 1119) PAN HOOK

This hook was designed to aid in removing or replacing the dust pans of Overland cars, but has been found of equal value on many other cars. It is simply a short metal rod bent to form a pointed hook at one end and looped at the other end.—S. E. Barber, Hodskin Garage, Canton, N. Y.

(No. 1120) WRENCH FOR TIGHT QUARTERS

This wrench was specially designed to facilitate the removal of Chandler cylinders without first removing the valves. Roughly, it is spoon shaped, formed to pass over the flanges, the feature being the method of making the wrench head. The head is double hexagon in shape, so that at each one-twelfth of a turn the nut may again be engaged. As a refinement, the wrench is fitted with red fiber handles, and nickel-plated.—C. C. Dieffenbacher, Chandler Service, Indianapolis.

(No. 1121) CARBON BURNING TANK STAND

This is an all-steel portable stand or truck for an oxygen tank. The base is composed of an inner and an outside ring, the inner ring being contracted by a thumb screw, and holding the tank; the outer ring forming the base, and carrying the castors. To the inner ring is riveted the upright handle that carries the upper contracting ring, holding the tank at the top.—Weber Implement and Auto Co., St. Louis.

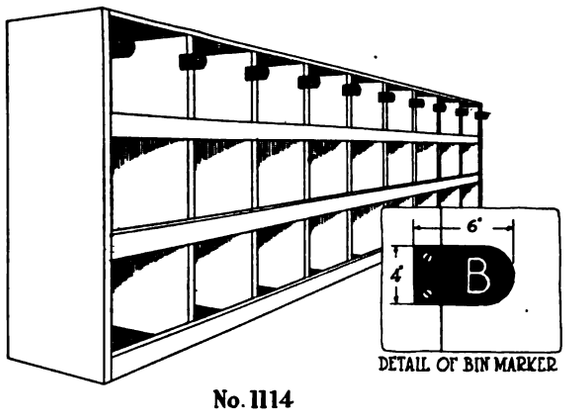
(No. 1122) TOOL RACK

This tool rack provides a large amount of storage space, and yet takes up little room. A base, containing drawers, divided into compartments, holds all bolts, nuts and screws, as well as other miscellaneous small parts. The tools are classified, and placed on the sides, end and top of the rack, where they may be readily seen. —Packard-Missouri Co., St. Louis.

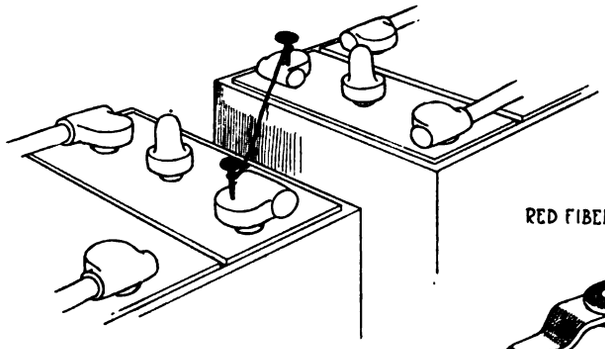
(No. 1123) PISTON TURNING CENTER

By the use of this piston turning center, either new or old pistons may be caught in the lathe, automatically centered, and driven without the use of a dog. In form, the center is similar to a pipe, or umbrella center. It is attached to the chuck spindle threads, and drives the piston through a cross bar that catches behind the wristpin lugs, when the wristpin is not in place. If the wristpin is in place, a notched top is placed in the center, that serves to drive the piston. —Packard-Missouri Motor Car Co., St. Louis.

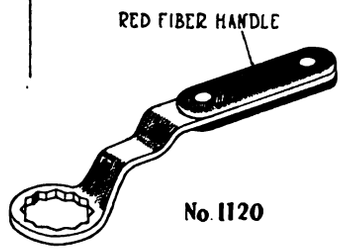
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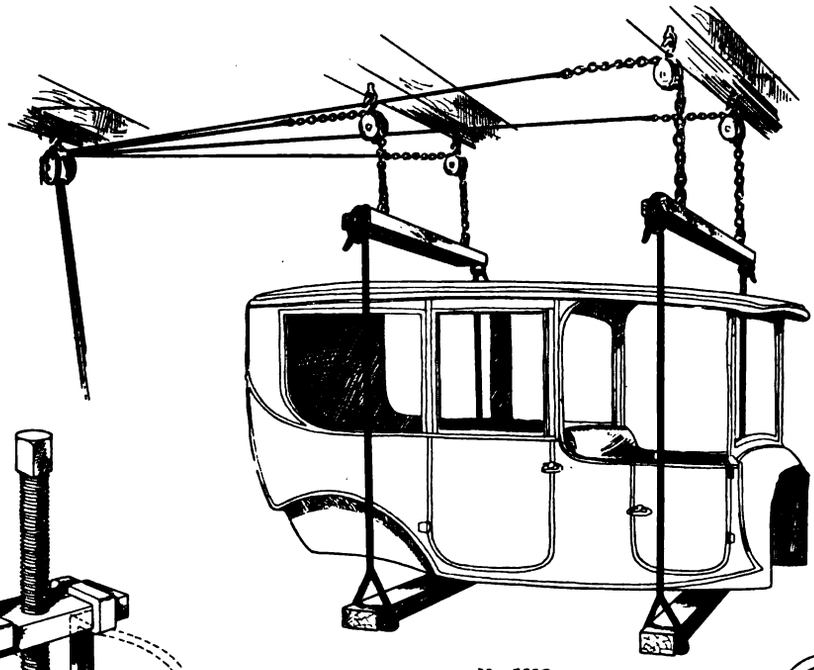
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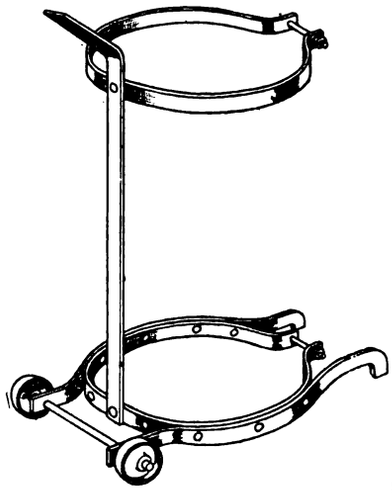
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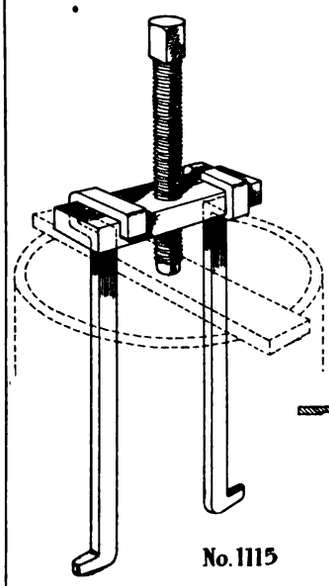
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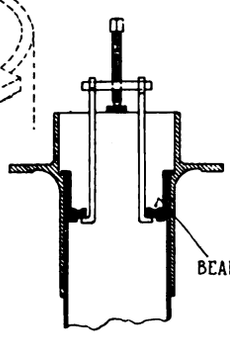
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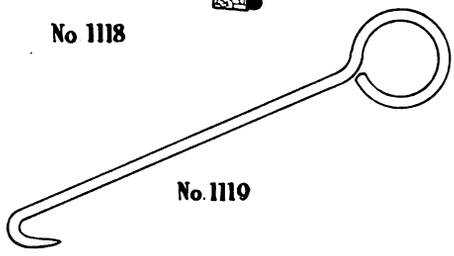


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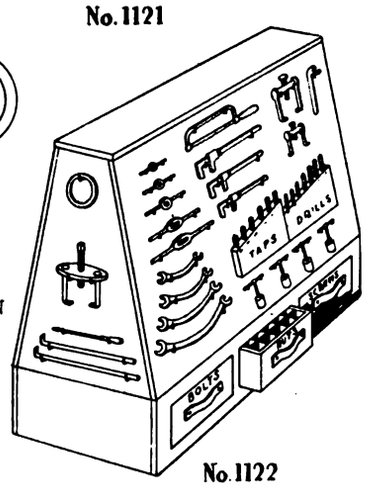


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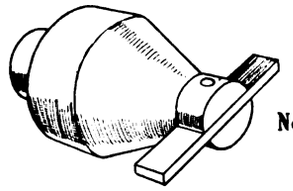
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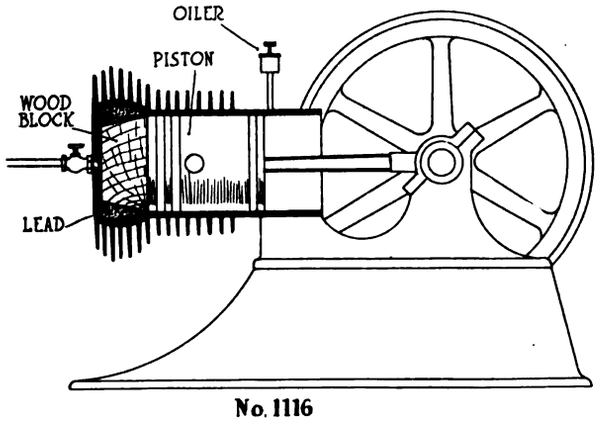
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TIP FOR GRABBING WRIST PIN

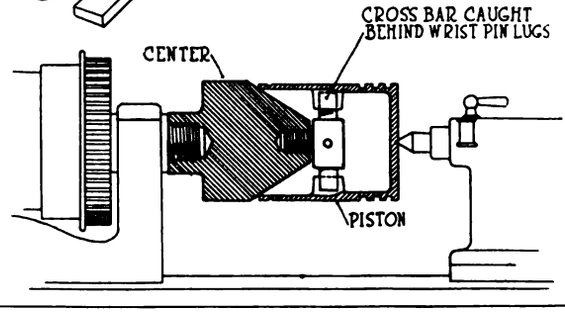




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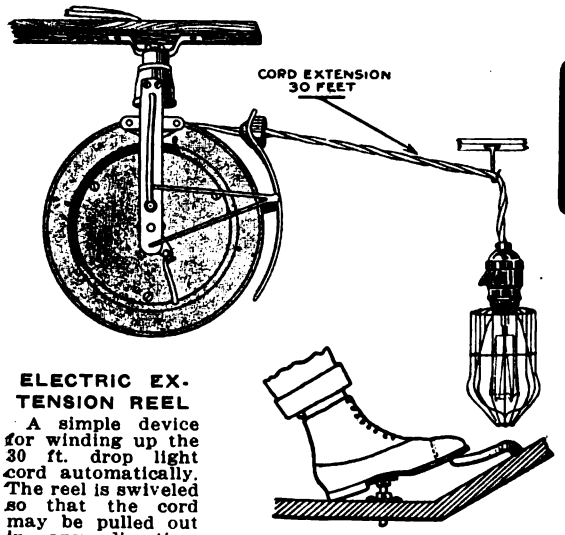


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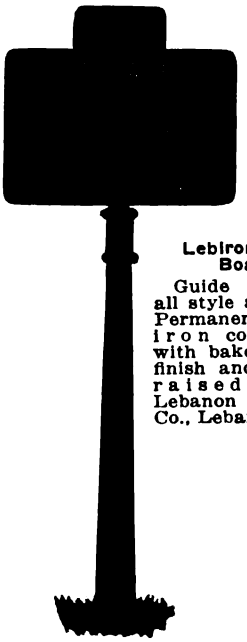
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Accessories



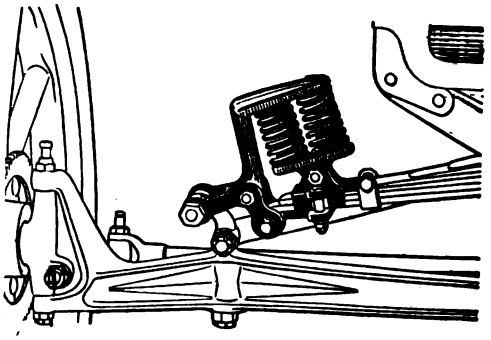
ELECTRIC EXTENSION REEL

A simple device for winding up the 30 ft. drop light cord automatically. The reel is swiveled so that the cord may be pulled out in any direction. The cord is rewound by giving it a slight pull which unlocks the ratchet, and the reel revolves.—Automatic Electric Extension Co., Dayton, Ohio.



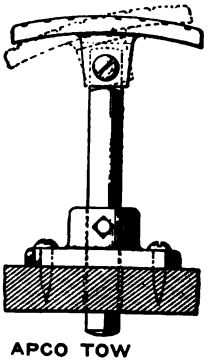
Lebiron Guide Boards

Guide boards of all style and types. Permanent cast iron construction with baked enamel finish and white raised letters.—Lebanon Machine Co., Lebanon, N. H.



CHAMPION SHOCK ABSORBER

For Fords the feature is the use of two coil springs with the lever arm pivoted at three points. Price, per set of four, $15.—Champion Shock Absorber Sales Co., Indianapolis, Ind.



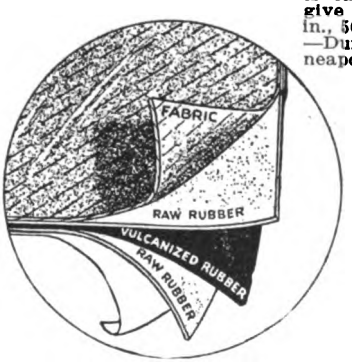
HICKS ACCELEREST

A pedal adjustable as to height and hinged so as to fit the instep. Price, aluminum, $1.50; iron, $1.25.—O. H. Hicks, 2615 E. Seventy-eighth Street, Chicago.

RIE NIE AUTO PATCH

Guaranteed to mend punctures and blowouts of all sizes. Designed for use without heat or cement. There is a layer of cured rubber between two layers of raw rubber, this construction being leak proof. There is fabric on the outside to give strength. Price, 36 sq. in., 50 cents; 108 sq. in., $1.00—Durkee-Atwood Co., Minneapolis, Minn.





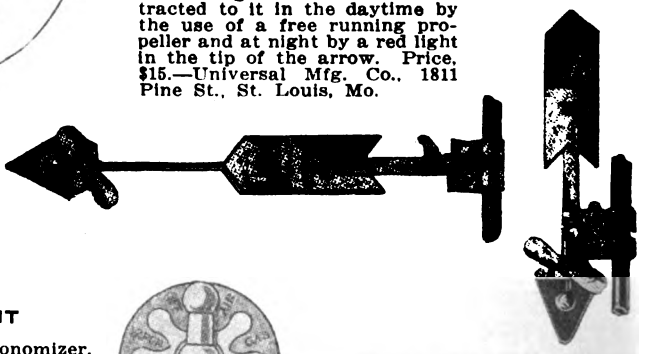


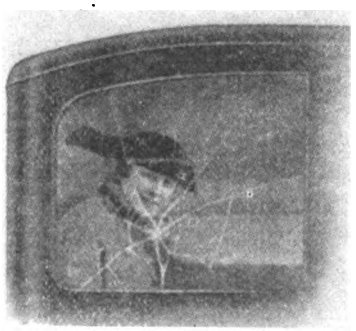
APCO TOW CHAIN

The links are specially treated and rustproof. It weighs 4 lb., comes in a canvas bag and occupies little room in the car. Price, $2.50.—Auto Parts Co., Providence, R. I.

AUTOMATIC TRAFFIC SIGNAL

One of these devices is mounted at either side of the car; by pushing a button the arrow unfolds and points the direction in which the driver desires to go. Attention is attracted to it in the daytime by the use of a free running propeller and at night by a red light in the tip of the arrow. Price, $15.—Universal Mfg. Co., 1811 Pine St., St. Louis, Mo.



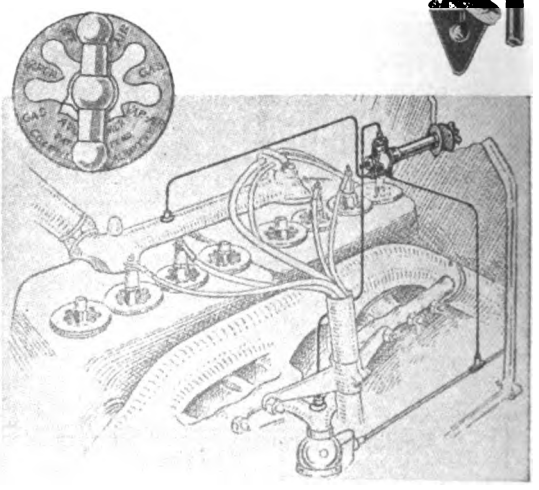


UNBREAKABLE GLASS

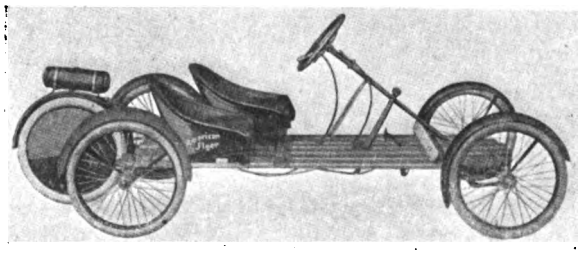
Super-Glass will crack but will not break. A stone will not go through it but will bounce back, cracking the glass but throwing no splinters. Thus, as far as utility is concerned, the glass is just as good as before. It offers the same protection to the weather, and there is no annoyance or danger from flying splinters.—Hires Turner Glass Co., Philadelphia.

A-V-G ATTACHMENT

It is a combined primer, economizer, and vaporizer. There is a dash plunger hand pump with pipes running to the water and intake manifolds and to the gasoline line. There is a dial surrounding the plunger handle and its rotational position determines its operation. There is an off position and positions for gas, vapor, air and vapor-air. In the gas position it operates as a primer, drawing gasoline from the feed line and sending it to the manifold; combined with the primer is an auxiliary air valve which supplies additional air; the vaporizer position draws a small amount of water from the cooling system and injects it into the manifold; and there is provision for obtaining a damp mixture when desired. Price, $7.50.—Cox Brass Mfg. Co., Albany, N. Y.

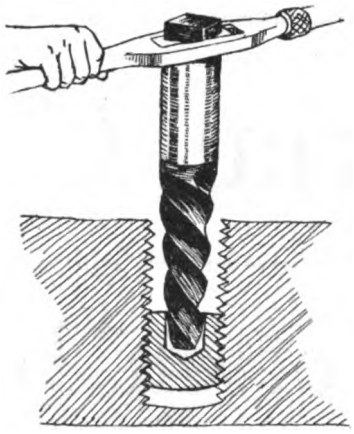


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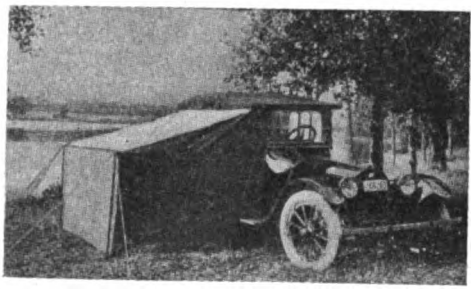
AMERICAN FLYER NO. 1

A buckboard for two, propelled with a Smith Motor Wheel. It is designed particularly for children, is easy to operate and costs little to maintain. Price, $125—American Motor Vehicle Co., Lafayette, Ind.



EZY-OUT SCREW EXTRACTOR

A simple tool for removing broken off studs or screws. The screw is drilled out and then the Ezy-Out is screwed in place and the part removed. The set comprises three tools of different sizes to handle all work—Cleveland Twist Drill Co., Cleveland.

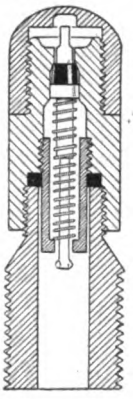


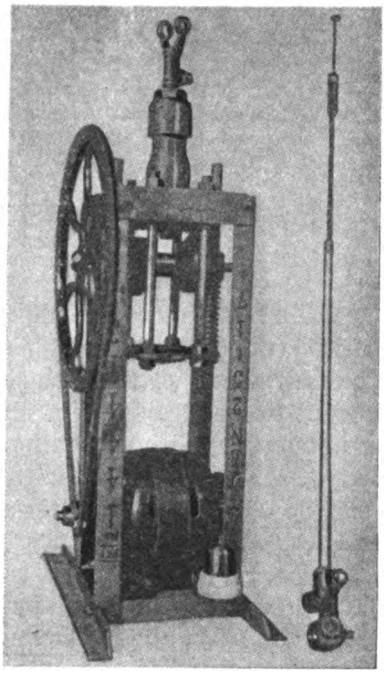
GENESEE AUTO TENT

The tent is carried on the running board. Only four stakes are required to set it up. Price, $7.50. A bed which may be stretched over the seats, costs $7.50. It is 6 ft. long and 42 in. wide.—Genesee Mfg. Co., Flint, Mich.

KEISTER'S NO-LEAK VALVE

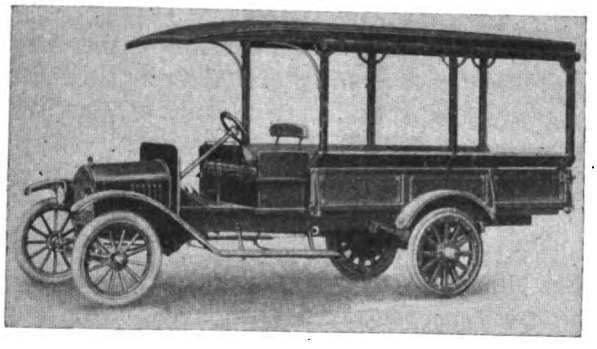
A valve which may be attached to any tube. It is claimed that only half the effort is required to force the air past the valve because of its improved construction. Price, $1.50 per set of four.—Al-Bach Auto Accessories Co., St. Louis, Mo.





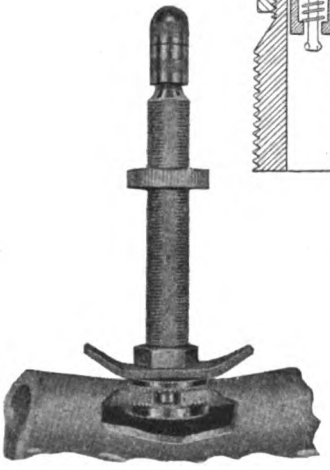
THOMAS VALVE GRINDER

A power-driven grinder hung from the ceiling. The car is run under it and the valves are ground by means of a flexible shaft connection. Eights or twelves may be worked on as readily as vertical types. The valve is given a half turn forward, then a quarter turn backward. Speed is varied by a friction drive. Price for line shaft, grinder with hanger, pulleys, etc., $45; ceiling type complete with electric motor, $75; portable motor driven, $95.—Thomas Auto Co., Fonda, Ia.



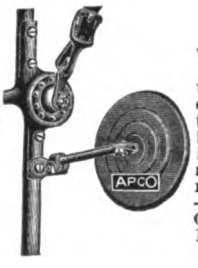
PARRY EXPRESS BODY

An open express body has been added to the line which consists of a large variety of commercial bodies for Fords, including bodies for the standard chassis and for extensions.—Parry Mfg. Co., Indianapolis, Ind.



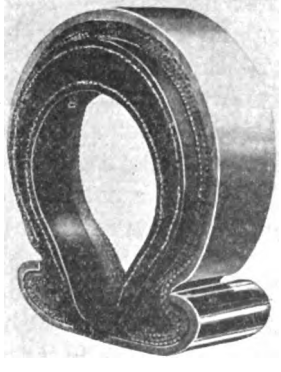
MOTOR BENCH FOR FORDS

A timesaver in overhauling Ford motors. The motor may be placed in any position. There is provision at the end for attaching the crankshaft so that another man may work on the bearings. There is a spill pan to catch dirt and a shelf on one end for tools. Price, $27.50.—T. K. Nelson & Son, Harlan, Ia.



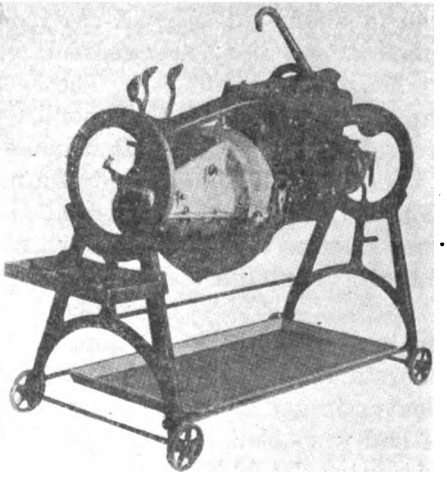
APCO REAR VIEW MIRROR

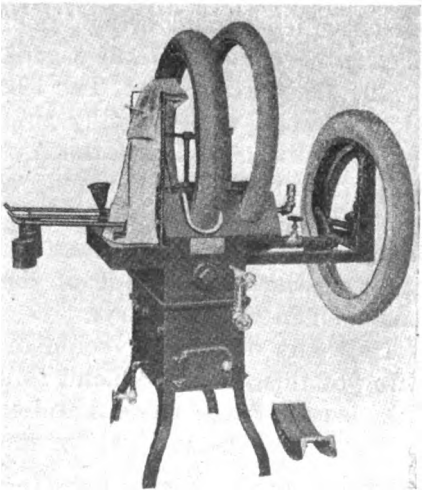
A reducing type, 5½ in. in diameter, with the glass spun into the frame. It has a wide range of adjustment. Price, $1.—Auto Parts Co., Providence, R. I.



TIP-TOP VULCANIZER

A steam vulcanizer for shoes and tubes. There are two cavities, 2½-3 and 4½-5 with a reducing shell for the larger size; inside patch 3½-4 on which all sizes of inside work can be done; bead molds 2½-3, 3½-4, 4½-5 for either Q. D. or straight side. Price, $125.—Akron Rubber Mold and Machine Co., 925 Sweitzer Avenue, Akron, O.





STERNWEAR TUBE

Section through Sternwear inner tube which is designed to be blowout and puncture-proof. The tube is extraordinarily thick and is reinforced with two layers of canvas fabric.—Sterns Tire & Tube Co., St. Louis.

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Editorial Observation

Rotten Business

THERE has come to MOTOR WORLD a letter which, it is said, one of the biggest and supposedly best distributing organizations in the Middle West has sent to the dealers in a rival car, knocking that car unmercifully and advising the dealers to drop a poor agency and hook up with a good line.

Let us call the distributer's so-called "good car" the X-car and let us call the supposedly "poor car" the A-car.

This letter is one of the worst samples of business that Motor World has ever known to be perpetrated in this industry. It is contemptible, mean, low and nasty.

The letter—which is a couple of pages in length—opens up by saying:

> You are the A-car dealer in your territory, and the question of the salability of the A-car and the future of the A-car product has no doubt started you seriously thinking.
>
> You are probably familiar with the difficulties experienced by the A-car factory in the year 1916 and with the difficulties experienced by every A-car dealer and distributer throughout the United States. During the last 6 months the A-car has probably been as difficult to sell as any other car in the country. During the past 6 months the A-car prestige has received a blow from which it may never be able to recover.

And so the letter runs on. Then, "you are probably considering a change. You may or may not have thought of the X-car. If the X-car has not been given your serious consideration we want you to think of it now. The X-car factory is one of the most remarkable successes in the automobile industry. . . ."

Then follows a long letter of praise of the X-car, all of which should bring the blush of shame to a decent merchandiser and a gentleman.

The facts are these: The A-car has been talked about, but it is still being sold and probably will continue to be sold and the A-car dealers probably will continue to make money as they have in the past. They certainly are a loyal lot and are not of a type to accept in good humor a nasty letter which stabs at the back of one of the biggest companies and men in the industry.

How any distributer could bring himself to do a thing of this kind is difficult to understand. To circularize the A-car dealers and endeavor to get them to handle the X-car is not of itself bad work, but is there any reason why the X-car distributer should be nasty about it and open his campaign by knocking?

If the X-car distributer wanted to boost the X-car to the A-car dealers, he could have done very well by leaving off the first part of his letter.

Nothing ever is gained by knocking or being nasty. That is one of the firmly grounded principles of salesmanship, and to find such a thing being done at this late day is as startling as a one-lunger at the New York show. We had supposed motor car salesmanship had progressed to the point where the bigger and better people in the business had cast knocking tactics into the discard.

But perhaps there is an explanation, conjectural though it may be. It certainly is a remarkable coincidence if it is not an explanation:

A year ago the factory organization of the X-car made a circuit of the country and at various organization meetings knocked by name all the cars that compete with it. The X-car sales manager did this and seemed to think he was doing a smart thing. His speech was one of the finest examples of knockmanship that the industry has seen in many a day.

At that time MOTOR WORLD said: "If things of this kind are told to dealers, what is the dealer supposed to do with the information? He is always told that knocking is poor salesmanship, but here the men at the head of the organization of which he is a part get up and set an example for him that can't be good."

And maybe this is one of the chickens come home to roost. Maybe this distributer has said: "If the X-car factory does these things and seems to be successful, why shouldn't I do these things?"

The X-car factory and the X-car distributer should remember this: It is not steel and leather and paint that make a car. A good dealer can make a good car out of a pretty poor piece of junk—and a poor dealer can kill the best car ever made. This has been many times proven.

And there is also this: This X-car distributer probably wants a loyal dealer organization. What can it mean to his dealers if they learn that he is trying to line up other dealers in their territories? Is he going to cut off his own dealers?

All in all, we believe this X-car distributer has pulled off a pretty poor piece of business.

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Plain and Simple

Editor Motor World: I received "Electric Maintenance" and find it one of the best published. It goes very much into all details of ignition and starting systems, and what's more everything is made very plain and simple so that everyone can understand their meaning and therefore get all these details.—W. F. Kusserow, Elec., U. S. N. R., Milwaukee.

Made $30 Through Motor World

Editor Motor World: A red letter day in my life came December 9, 1916, when a friend handed me a copy of the December 6 issue of MOTOR WORLD, in which I read your announcement of the opening of a Better Mechanics department. I was enough interested to go to a newsdealer and ask him to order it each week for a month so that I could "get a line" on what this department was going to be like, as I had been disappointed so many times before.

The dealer put in the order and I went to his store no less than a dozen times. Finally the December 26 issue came along and I was very much pleased with it, as well as with those that followed, but for some reason this dealer was unable to get any further copies after January 17, 1917, so my file is incomplete, lacking the issues of January 24 and 31, February 7, 14 and 21. Can you furnish these issues, or any part of them?

At the Boston show the very first one I saw was an agent for your company. He hailed me and began to talk MOTOR WORLD but, believe me, it did not take me long to shut him off. I did not want to hear anything about the publication, and I told him so in as many words, while I was digging up a $2 bill, and I feel reasonably sure of the next 52 issues.

He had an extra copy of the February 28 issue, which he gave me, and if I can get the others mentioned above I shall be content. If any of the 52 for which I have subscribed do not show up on time you need not worry about it, I shall let you know at once.

One issue contained the description of a job on a car on which I had never worked, yet I was confident enough to start work on such a car any time it happened to come my way. I read the description over several times and the second day after such a job came in.

I went at it with your description fresh in my mind and, because of this, was able to do the job so quickly that the owner decided to let me do two other jobs, amounting in all to $12. The next day a chum of his came in on his recommendation, and I did $18 worth of work for him, besides selling him some parts on which I made a small profit.

Question: What is the value of the service department in that issue to me?

Answer: Thirty dollars worth of labor and a new, satisfied, regular customer (for he has been in often since for work and advice) is good enough for one dime's worth of instruction, what?

Letters From MOTOR WORLD Readers

No wonder I could afford to subscribe, or that I am anxious to complete my file!

Keep up the good work and let me hear from you soon in regard to the missing numbers.—Carroll F. Bachelder, Chelsea, Mass.

Let's Quit Swearing

EDITOR MOTOR WORLD—It is with pleasure and great interest that I turn to the page of MOTOR WORLD showing drawings impressing the reader forcibly as to what is the meaning and what is required to make a good salesman.

I, as an accessory salesman, calling on garages and accessory stores and having the good of the business at heart, feel there should be something said and done about profanity—swearing—cussing—in garages and accessory stores.

I realize as a salesman this is a detriment to business and an oversight on the part of not only the proprietors, but clerks and mechanics.

If I were to drive into some garage with my wife and children in the car I would expect *service*—not only as to supplies and repairs, but to my intelligence.

Let us have the courage to put up signs "Swearing is positively prohibited by all employees of this garage and we hope any of our customers will report any employee who uses profanity."

This sign will have the desired effect on the customers no doubt.

Abraham Lincoln was riding in a stage coach and his fellow-passenger was punctuating every other sentence with an oath. Lincoln didn't say anything until they got out to change horses, and he said:

"I wish, sir, you would inform me if you hear me swearing during the balance of our journey." Lincoln, in telling of the instance, remarked afterward, it had the desired effect, as his fellow-traveler didn't swear the balance of the journey. —Yours for better service, W. R. Yates, Carnegie, Pa.

Be Positive

Editor Motor World: You made a bull's-eye with your article, "Do You Get Turned Down?" by J. Frank Dechant. It is the best article on salesmanship I have read in a long time. Sell ideas with your goods, and your goods will remain sold.

I claim the man is not a salesman who can sell twenty Humdinger automobiles in one season, unless he also sells the customer the Humdinger idea.

If he sells the car without the idea, a large per cent of his customers will, undoubtedly, in the future try another make. Which proves they are not sold on Humdingers—which proves the Humdinger salesman (?) is not.

To be positive, is to be successful.

I am training my son, now five, to be positive in all things; his talk, his walk, his play, his thoughts, etc.

In correcting him I use positive suggestions. No one who is positive can fail to gain, and hold, attention. Attention is one of the cardinal points in salesmanship.

First, gain attention; second, hold attention and create interest, by demonstrating and explaining the idea in a convincing and positive manner; third, climax—closing and clinching the sale.

Hoping you will not consider me a pest for writing so often this winter, I beg to remain, Yours for better business, C. R. Pierson, with Buick Agency, Service Department and Selling, Salineville, Ohio.

Likes Better Mechanics

Editor Motor World: Let me express my most heartfelt thanks. To me, like you all, there is nothing that is more helpful to mechanics than the pages devoted to us. I am the head mechanic for the garage and find a 1000 helps in each issue.—O. C. Boyls, Graham, Tex.

Bethlehems Have Governors

Editor Motor World: Kindly correct the statement made in your article on page 46 of your Feb. 14 issue to the effect that Bethlehem motor trucks are not equipped with governors. The road speed of Bethlehem trucks is positively controlled by Pierce governors, driven off the main driveshaft, giving the maximum power when needed, and controlling the speed of the ton and one-quarter model to 18 miles per hour, and of the two ton and one-quarter model to 15 miles per hour.

Also kindly correct your statement that Lycoming motors are used in our smaller model. Such is not the case, the motor used being the Golden, Belknap & Swartz motor.—Bethlehem Motors Corporation, Allentown, Pa.

New York Has 317,866 Cars

ALBANY, N. Y., March 24—New York State has 317,866 motor vehicles registered to date. Of this number 102,530 are registered in New York City, where there are 524 concerns engaged in the automobile business. This city also contributed 56,325 to the army of 105,847 chauffeurs licensed in the State. Buffalo has 96 cars registered and this city has 83,260.

Sells Halladay Interest

DETROIT, March 24—A. C. Barley, president of the Barley Motor Car Co., Halladay, Mich., manufacturers of the Roamer car, states that he has sold all interests in the Halladay to the Halladay Motor Car Co., Mansfield, Ohio, an organization with a stock of $400,000.

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The RETAIL NEWS.

EAST.

The Post & Lester Co., Hartford, Conn., has been appointed distributers of S K F Ball Bearings.

The Motor Transportation Service Co., 488 Broad Street, Providence, has been purchased by George F. Cox and B. E. Blackley of Syracuse, N. Y.

The Silver Auto Parts Co., 241-243 Harding Street, Worcester, Mass., is now operated by Abraham Silver, 102 Water Street.

Adelaide Garage & Supply Station, 935 Broad Street, Providence, has discontinued business.

Herbert A. Thayer, Providence, distributer of Goodrich tires, will erect a five-story garage and showroom at Weybosset and Winslow Streets. It will be 54 x 104 ft., equipped with elevator and heat.

Walter L. Rose, Wickford, R. I., has purchased the Gregory Mill and will convert it into a garage.

Ellen J. Canane, 17 Cambridge Street, Worcester, Mass., is to build a brick garage, 40 x 100 ft., one story.

Dutee W. Flint will alter the entire office of the Ford service station on Allens Avenue, Providence. Eight new offices will be added. Also a one-story addition on the stockroom, 48 x 40 ft.

N. E. Nystrom, Bristol, Conn., will build a new three-story building 15 x 90 x 110 ft. He will use the first floor as a garage and service station and the Bristol Motor Sales Co. will occupy the other two floors.

The United States Rubber Co., Woonsocket, R. I., will build a three-story addition, 40 x 54 ft.

Griffin Bros., Springfield, Mass., are building a garage on Plainfield and West Streets.

Isaac Richmond of Springfield, Mass., is building a garage, 107 x 110 ft., two stories and basement.

The Hip Garage Corp., Providence, has applied to the inspector of buildings department for permission to transform the Hip Theater into a public garage.

Frank A Munsey of New York is planning to erect a garage in the rear of the Mohican Hotel, State Street, New London, Conn., of which he is the owner.

SOUTH.

The Mineral Hardware Co., Inc., Mineral, Va., has just completed a three-story garage and will have an expert mechanic in charge of repairs.

Harry Weinberger, Nashville, has been made factory representative for the U. S. Tire Co., with headquarters at the Newsum Auto Tire Vulcanizing Co. Weinberger was formerly with the Newman Auto Tire Vulcanizing Co.

The Dennis Auto Supply Co., Richmond, Va., has moved into new quarters at 519 West Broad Street.

Arthur L. Tate, Richmond, Va., manager of the Atlantic Auto Accessories Co., has joined the staff of the Twin State Motor Corp. at Norfolk, Va., where he will sell the Velie.

SOUTHWEST.

The Hutchinson Motor Car Co., Hutchinson, Kan., recently held its formal opening.

The King Motors Corp., Hutchinson, Kan., will establish a branch in Oklahoma City, Okla.

Beam & Close, Kansas City, Kan., have opened to sell the Parker automobile lock.

The Reformatory, Hutchinson, Kan., is to have an automobile repair school, for which the state recently appropriated $7,000.

The Armourdale Garage, Kansas City, Kan., is enlarging.

The Maxwell Motor Car. Co., Kansas City, Mo., is building an assembling plant, to cost $176,000.

A. W. Rush, La Cygne, Kan., has purchased the interest of R. G. Welborn in the La-Cygne garage.

J. M. Judd Motor Co., Lakin, Kan., is erecting a $35,000 garage.

W. G. Leavel, Leavenworth, Kan., will build a garage.

S. H. Long, Lincoln, Kan., Maxwell dealer, has erected a garage.

O. R. Ames, Moline, Kan., has bought the automobile business of Amos & Sackett.

R. A. Wright & Glenn Lynn, Neosho Falls, Kan., will build a garage.

B. W. Plummer, Newton, Kan., formerly associated with Ira Warren, will continue the service station alone.

Miller Automobile Co., Olsburg, Kan., has bought the supply stock of the Hartman Garage.

Clark Jewell, Paola, Kan., has purchased E. J. Haughey's interest in the Paola Automobile Co., Maxwell dealer, and the firm will be known as Lucas & Jewell.

St. John Battery Co., St. John, Kan. has opened a Willard service station.

The Arnold Automobile Co., Wichita, Kan., Dodge, Chalmers, and Marmon dealer, is erecting a building.

The Simpson-Clark Motor Car Co., Salina, Kan., is moving into new quarters.

The Overland Salina Co., Salina, Kan., is installing a Prest-o-Lite service station.

Karl Van Denberg & Frank Bruner, El Dorado, Kan., have purchased the Butler garage.

Jess Sawyer, Fred Stewart & Ellis Cochran, Floyd, Kan., have traded for the Grenola garage.

M. R. Benson, Harper, Kan., will build a garage.

Mike Poell, Hanover, Kan., will erect a garage.

The Elgin Motor Car Co. will establish a branch house in Kansas City, Kan.

The Jones Garage, Kiowa, Kan., has removed to the former Benton Ives building.

E. R. Grant, Kingman, Kan., Chevrolet dealer, will establish salesrooms at Kiowa, Medicine Lodge, Pratt and Cunningham.

Lennie Manson, Minneola, Kan., will open a garage.

W. A. Schade & George C. Dahkne, Manhattan, Kan., have opened a garage.

The Central Garage, Pittsburg, Kan., is under the new management of A. A. Magie. J R. Gibsen, and I. S. Hixon.

Nels Jacobson, Roxbury, Kan., is building a garage.

The Salina Auto Wrecking Co., Salina, Kan., has moved to 9th and Elm Streets.

J. G. Parrish & S. W. Boswell, Fersyth. Mo., are erecting a garage.

The Equipment Co., Kansas City, Mo., has become affiliated with the Mutual Motor Stores Co., Cleveland, and has moved from 1522 Grand to 1529-31 Walnut, where it is doubling its space. The company will retain its old name.

The Portageville Motor Co., Portageville, Mo., under the management of W. E. Yount and Ed Johnson, is open for business.

J. M. Shockley, Vienna, Mo., has rented the Buschman garage and will conduct a Maxwell repairshop and oil station.

Jess Viertel, Boonville, Mo., has entered the firm of Viertel Brothers, garage owners. P. P. Viertel, former manager, has retired from the business.

Chas. Hacker, Bethany, Mo., has leased Edson's garage and will enlarge it.

Geo. W. Reams, Cassville, Mo., may build a garage.

F. W. Steadley, Carthage, Mo., will erect a garage.

Jos. Poettgen & Son, Freeburg, Mo., will erect a garage.

Boulware H. Jameson, Fulton, Mo., will erect a three-story brick building.

Frank Beets, Independence, Mo., Overland dealer, is building a garage.

F. R. Snider, Lees Summit, Mo., will erect a 65 x 100-ft. garage.

Max Davidson, Liberal, Mo., will erect a 120 x 30-ft. garage.

H. T. Williams & Son, Mount Vernon, Mo., have bought the Jeffords garage.

Joe Hume, Memphis, Mo., Dodge dealer, will open a garage.

Moss & Urner, Nevada, Mo., have rented the D. S. Wiles garage.

John Roark, Seneca, Mo., purchased the interest of Alfred Golden in the Roark Golden Garage, selling a half interest to Earl Johnson.

L. L. DesComber, Warrensburg, Mo., will open a supply and accessory business.

J. H. McLevey, Warrensburg, Mo., recently sold his garage to J. M. Grier.

Houck Bros., West Plains, Mo., garage owners, have bought the supply and accessory stock of Wm. McBride.

R. A. Perry, Pittsville, Mo., has opened a garage.

Ira Lumber, Abilene, Kan., will build a garage.

Dean & Whightsil, Altoona, Kan., have built a brick addition.

L. M. Osborne, Arkansas City, Kan., is opening a tire business.

Dodge & McCall, Bennington, Kan., have opened a vulcanizing plant.

D. T. Coolen, Bonner Springs, Kan., has purchased the Golden Belt Garage from Armour Scott.

E. E. McHugh, Bucklin, Kan., is building a garage.

Chas. Robinson, Bucklin, Kan., is building a garage.

Butler & Baily, Centerview, Kan., are erecting a garage.

Rudolph Lahodny, Columbus, Kan., is building a 30-foot addition to his garage.

Frank Burnsides, Commerce, Kan., will open a repairshop.

Gardner & Duff, Concordia, Kan., are successors to Clawson & Gardner.

Odum & Zumwalt, Downs, Kan., have opened a garage.

VanDenberg & Bruner, El Dorado, Kan., repairshop operators, have bought out the repairshop of Beaumont & Parton.

Bert McCullough, El Dorado, Kan., has opened a service station.

Clyde Fresh, El Dorado, Kan., of the firm of Stutzman & Fresh, has bought the interest of his partner.

Ben Dempster, Great Bend, Kan., has purchased the storage, repair, and accessory department of the Santa Fe Garage.

Mr. Nelson, Gypsum, Mo., has taken an interest in the McDonald Garage, to which an addition is being built.

Chas. Eckart, Hanover, Kan., Overland dealers, is building a garage.

The Harveyville Ford Car Co., Harveyville, Kan., has changed its name to the Harveyville Motor Car Co.

Frazey & Stalcup, Holton, Kan., will build a garage.

Frank Dickerson, Toronto, Kan., will open battery service station.

Frank and Charlie Ash, Wellington, Kan., will open a garage.

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Johnson & McComb, Stafford, Kan., Buick dealers, are open for service in their new service station.

Geo. A. Rolfe, Wetmore, Kan., is building a garage.

J. M. Throckmorton, Wichita, Kan., has bought a half interest in the Briscoe Automobile Co.

Axel Lindgten, Topeka, Kan., has opened a repairshop.

Adolph Ruhnke, Wathena, Kan., has rented the garage of Ed Kiehnhsff, and will engage in the sale of automobiles.

Gep. A. Rolfe, Wetmore, Kan., will erect a garage.

The St. Louis Grant Co., St. Louis, has been formed by J. C. Barcus and Henry C. Deabold, to sell the Grant in southern Illinois and eastern Missouri. Salesrooms have been opened at 3844 Olive Street.

Harry Newman, Inc., St. Louis, Kissel distributer, has opened a truck branch at Olive Street and Lindell Cutoff. Charles R. Porter is in charge.

The Firestone Tire & Rubber Co., St. Louis, has doubled its warehouse space at Locust and Compton by selling the vulcanizing equipment to the Glenn's Tire and Vulcanizing Co. Two car entrances have been opened on the Compton side of the building.

Allen K. Haines, St. Louis, formerly with the Locust Motor Sales Co., has joined the staff of the De Luxe Automobile Co., to handle Crow-Elkhart cars for that company.

The Franklin Auto & Supply Co., St. Louis, has put C. E. Graham, a Franklin factory engineer, in charge of the new service station.

Jack T. McKibben, St. Louis, has been appointed manager of the East St. Louis branch for the Hudson-Phillips Motor Car Co., of St. Louis, with which company he has long been identified.

B. L. Eason, St. Louis, formerly of the Locust Motor Sales Co., has joined the Oldsmobile staff of the De Luxe Automobile Co.

The Hughes Motor Sales Co., Little Rock, has been organized to sell the Regal. T. H. Hughes is president and J. V. Scrivner, secretary.

"Dolly" Stark, Little Rock, the Southern League ball player, has been added to the force of the United States Auto Co.

The Midway Auto Co., Little Rock, is established in a new salesroom at 410, 412, 414 Louisiana street. The firm has added the Davis to its line.

Paul Abernathy, Little Rock, Ark., former sales manager of the Valley Motor Car Co., Memphis, has joined the staff of the United States Auto Co., Little Rock, Ark.

Gilliam & Steele, Slater, Mo., will build a large garage adjoining their main building. The garage will be brick, 50 x 125 ft., and will be started at once.

The Ever-Ready Battery Co., Concordia, Kan., has opened a service station at 113 East Sixth Street.

The Willard Battery Service Station, Washington, Kan., has opened for business.

Frank New and Chris Prather, Hooser, Kan., are building a garage.

Albert Teed and Ralph Frost, Hutchinson, Kan., have leased a building at 127 East Sherman Avenue and will operate a branch of the Goodrich Tire Co.

E. Christensen, Exeter, Neb., sold his garage to J. N. Kennedy.

C. M. Brack, Otis, Kan., is building an addition to his garage.

The Emerson Co., of Texas, Fort Worth, Emerson distributers has purchased a building for $25,000.

The Goodyear Tire & Rubber Co., Dallas, has moved into its new quarters, 1510-1512 Commerce Street. The new building is modernly equipped.

MIDDLE WEST.

The Hughes Motor Car Co., 495 Broadway, Milwaukee, Wis., has moved into its new three-story fireproof garage and service building, 60 x 120 ft., at 461-465 Broadway.

LaVeren Potter and Alwin Rist, Prairie du Sac, Wis., have opened a tire and vulcanizing shop in the Martin Walser building on Water Street.

The Motor Sales Co. of Grand Rapids, Wis., has been organized to take over the business of the Edward P. Gleason Co., Port Edwards, Wis., and has opened showrooms and service station in the Johnson-Hill building, Grand Rapids. Edward P. Gleason is president and M. Suhs is manager. The company is Dodge, Olds, Hudson, Franklin and Cadillac dealer.

Leach & Christensen, Hartford, Wis., car, farm implements and hardware dealers, are remodeling and enlarging their building for the purpose of giving the motor car department about 8000 sq. ft. of additional space.

P. C. Wallichs, 14 South Main Street, Fond du Lac, Wis., Willard battery distributer in Fond du Lac and Green Lake Counties, is building a 26 x 40 ft. addition for charging and service station.

Johnson & Chainey, Florence, Wis., operating under the style of Florence Garage Co., have dissolved. Chester E. Chainey has disposed of his interest to William C. Johnson, who will continue the business and act as Ford dealer.

Fred Wellitz, Milwaukee, Wis., is negotiating for the lease of the Walter Building, Commercial Street, Neenah, Wis., with the intention of opening a supply, accessory and tire store and shop.

J. F. Dupont, Laurium, Mich., operating the Dupont Garage, has been appointed Jackson dealer for Calumet and Laurium.

Frank Lowater, Chippewa Falls, Wis., will open a garage and repairshop in the fireproof building, 60 x 132 ft., to be erected at Bay Street and East Grand Avenue by Frank S. Weigand.

Jacob Ledermann, 3412 Burleigh Street, Milwaukee, will build a one-story and basement garage, 52 x 115 ft., of brick construction, at 3408-3410 Burleigh Street.

Buddy & Vrooman, Delavan, Wis., operating a garage and repairshop, have leased the Sturtevant Building and will remodel it into a modern garage and service building, part of which will be occupied by DeGroff & Hatch, Mitchell dealers, as showrooms.

Warren's Auto Livery, 300 Twelfth Street, Milwaukee, will build a public garage and repairshop, 60 x 120 ft., at that location. It will also serve for its livery business.

W. L. Oltman, Ellsworth, Wis., has disposed of his mercantile business to devote his attention to his motor car and repair business. With Alfred Larson he will erect a modern fireproof garage in Ellsworth.

E. O. Anderson, Escanaba, Mich., has purchased the Columbia Building, 608-610 Ludington Street, and is remodeling it into a garage and repairshop, to be ready April 1 or 15.

Othersall & Sorenson, Antigo, Wis., have purchased a site for a new fireproof garage, 44 x 80 ft., on East Fifth Avenue. The firm is Maxwell dealer.

Ben Hassenger, Marquette, Mich., will open a repairshop and service station in the Myers Building, Division and Pine Streets, on April 1. Hassenger has been engaged by all Ford dealers in Marquette County as official service station.

R. V. Arenson and G. E. Heath, Madison, Wis., have opened a tire and supply store at 118 South Pinckney Street, and will distribute Marathon tires in Dane, Richland, Grant, Lafayette, Sauk, Columbia, Green, Rock, Jefferson and Dodge Counties.

The E. W. Clark Motor Co., Fond du Lac, Wis., Hupmobile, Chandler, White, Jackson, Dort and Maxwell dealer, has been appointed dealer for Happy Farm tractors.

Conrad and Richard Swanson, Mason, Bayfield County, Wis., have formed a partnership as Swanson Bros., and will build a garage and repairshop to cost about $10,000. Temporary quarters have been leased.

Ben A. Boland, Sheboygan Falls, Wis., has purchased the business of H. W. Schlichting, Ford dealer, and will remodel the Rose Theater Building into a modern garage and service station.

Jo. M. Jacobs, Shell Lake, Wis., will open a garage and machine shop in the Sales Building on April 1. The building was formerly occupied by Fred Ranney as a service shop.

The Modern Motor Co., 2402 State Street, Milwaukee, will build an $8000 addition, 45 x 145 ft., of brick and steel, to be ready about May 15 or June 1.

Morton Bros., 2419 Sycamore Street, Milwaukee, have awarded contracts for the erection of a brick and steel garage, 50 x 70 ft., at Nineteenth and Wells Streets, Milwaukee, to cost $10,000 and be ready June 1.

Terwilliger & Hughes, Clinton, Wis., are having plans prepared for a two-story garage addition, 30 x 120 ft.

Stock Bros., 228 East Main Street, Madison, Wis., have sold their repair and machine shop to E. L. Foss, who will continue the car service and repairs business.

Frank Mulkern, Milwaukee, Wis., operating one of the largest garages and service stations in Milwaukee, at 584-604 Downer Avenue, has incorporated the business under the style of Mulkern Garage Co., at $150,000. Mulkern also operates a large garage at 622 Wells Street and an extensive taxi cab and livery business.

Charles Warfield, Lincoln, Ill., has accepted plans for a new garage to cost $12,000, which he will erect at the corner of Clinton and Logan Streets, to be two stories, 80 x 150 ft., and will be ready for occupancy July 1.

Thure Larson, Paxton, Ill., has purchased the interest of his partner, Nelson Sunnes, in the Paxton Garage, and will hereafter conduct the business alone.

Stouffer Bros., Decatur, Ill., have rented the Bacon Building, corner of Eldorado and Main Streets, and will remodel it for a garage and sales agency. A complete line of accessories will be carried and a general repair business conducted. The firm will be distributer for the Briscoe in Macon County.

The Wolfe-Cadillac Co., Davenport, Iowa, has opened a new garage, service station and sales agency at 316 East Second Street. White tile floors and mahogany furniture are used in the salesroom and offices. The building is fireproof and constructed so as to permit additional stories if needed. There will be a service and repairshop, and a line of accessories will be carried. The firm is composed of H. J. Wolfer, C. R. Wolfer and E. J. Boud.

Leach & Leach, Stonington, Ill., have opened a new garage. In addition to maintaining a sales agency, a general repair and storage business will be done and a line of supplies carried.

Jay E. Wemple, Springfield, Ill., has opened an agency there for the Smith Form-a-Truck, and will be distributer for central Illinois. Wemple was until recently a resident of Waverly, Ill. He will specialize in truck bodies and plans to handle a number of lines.

Charles Roach, Springfield, Ill., will open a new sales agency, service station and accessory store at 318 East Monroe Street on April 1. He will be distributer for Sangamon County of Commerce and Federal trucks, and will also handle a pleasure car.

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Goddard & White, Springfield, Ill., have dissolved partnership, and the business will be continued by A. C. White.

Nicholas H. Ridgely, Inc., Springfield, Ill., is the title of a new corporation to deal in automobiles and accessories, capitalized at $10,000, by Nicholas Ridgely, Franklin Ridgely and Mary Ridgely.

Larry J. Malone has opened the Malone Motor Co. at Galesburg as agent for the Chevrolet. Malone was connected with the Pinkerton Motor Co. of Peoria for the past four years.

NORTHWEST.

H. L. Vaughn, Fairbury, Neb., bought an interest in the Whittet & Traeger Garage, and adds his name to that firm.

Del Alderman, Bloomfield, Neb., has bought the interest of John Munro in the Gossard & Munro Garage.

Milton Brewer, Bloomfield, Neb., has bought the interest of Morris Claussen in the Book & Claussen Garage.

James Anderson, Helvey, Neb., has sold his garage and retired.

Gurley Alexander, Falls City, Neb., will open a garage.

Tunberg & Reetz, Hooper, Neb., have opened a garage.

The Wallace Sitter Motor Co., Laramie, Wyo., has opened a garage and repairshop.

Frank Widhalm, Humphrey, Neb., bought the Platte Center Garage at Platte Center, Neb., from P. E. McKillip.

Earl Rodman, Tamora, Neb., has sold his garage to Abraham Morton and John Bartholomew.

C. G. Elliott, Walthill, Neb., has opened a garage.

The Middleton Auto Co., Eagle Grove, Ia., will open a branch in Clarion, Ia.

William Propst, Plattsmouth, Neb., bought the old Patterson & Wynn Garage and has taken possession.

Rudolph Bollinger, Coin, Ia., has bought a garage at Angus, Neb.

D. C. Bauder, Harlan, Ia., has leased a building and opened a repairshop in Shelby, Ia.

Thompson & Branchflower, Washington, Ia., is a new firm to open up the Motor Inn.

H. B. Moraine, Graettinger, Ia., has opened a repairshop.

Jack O'Brien, Dow City, Ia., has opened a repairshop.

Charles Scholes, Wasta, S. D., has sold his interest in the Wasta Garage to C. H. Honnold.

Arthur Ricketts, Jr., Britt, Ia., has opened a garage and repairshop.

Chris Hoegh, Brayton, Ia., has sold his garage to George A. Christensen.

Edward Miller, Clarinda, Ia., has bought the stock of the Johnson Garage.

H. I. Rench, Rockwell City, Ia., and John Beam, Lavinia, Ia., have bought the Stearns Garage, Rockwell City, from John Mangold.

W. S. Beall, Shannon City, Ia., sold his interest in the Beall Auto Co., and moved to Mt. Ayr.

R. P. Ewing & Son, Spencer, Ia., have sold their garage to S. A. Miller.

R. E. Pitcher, Alma, Neb., bought the City Garage from Pitcher & Craig.

A. G. Edlund, Axtell, Neb., has bought a building and will open a garage.

F. K. Fulton, David City, Neb., has sold his interest in the Fulton & Brochtrup Garage to his partner, Leo Brochtrup.

The Friend Auto Co., Friend, Neb., is the name of the firm opening the old Heagney Garage. The members are C. O. Romsdel and A. C. Roberts.

D. M. Hook, Dodge, Neb., has bought the garage and repairshop of Frank Vnuk.

L. M. Parker, Deadwood, S. D., has organized a firm with his son, L. W. Parker, to open a garage in Newcastle, Wyo.

William Detamore & C. Ketcha, Phillips, Neb., have bought a building and will open a garage.

T. R. Blank, Macon, Neb., has bought an interest in the Hoyt Bryums Garage at Riverton, Neb., and will soon take possession.

The Trumbull Garage Co., Trumbull, Neb., has been incorporated by William Sanderson, C. M. Turner and others, at $5,000.

A. O. Harney, Henderson, Ia., sold his garage to the Red Oak Auto Co., Red Oak, Ia.

Miller Bros., Lake Andes, S. D., have opened a garage.

Henry Wilhelmj, Aurora, Neb., will open a garage at Chappel, Neb.

Ray Smith & Fred Berwick, Scottsbluff, Neb., have leased the A. W. Johnston Garage at Bayard, Neb.

Hillis Newman, Aurora, Neb., has bought the Lee R. Brown tire business.

C. L. Crawford, Blue Hill, Neb., sold his automobile and repair business to Fred and Chris Pohlenz.

M. R. Holmstedt, Fullerton, Neb., has bought a half interest in the Loup Valley Garage.

Elliker Bros., Oxford, Neb., have bought the C. S. Primo Garage.

COAST.

Waterhousee-Sands Co., Seattle, Studebaker dealer, will build a three-story salesroom and garage to cost $30,000.

John Denhof, Chehalis, Wash., has leased the Chehalis Garage, and will remodel the building into a first class garage. Denhof has secured the agency for the Studebaker and will also handle the Universal tractor.

H. J. Bensinger, Spokane, has been made manager of the B. F. Goodrich Rubber Co.'s store, and will be assisted by L. C. Cottington, who will travel the Inland Empire territory.

Pacific Motors, Inc., Seattle, has been organized to distribute the Harroun in Washington and Oregon. Headquarters opened at East Pike Street and Belmont Avenue.

Grant A. Mark is president and R. B. Mark is vice-president.

R. L. McLeod, Butte, Mont., will have charge of the new distributing station of the B. F. Goodrich Co.

Lewis Automobile Co., Bellingham, Wash., is now distributer of Buick pleasure cars. G. M. C. trucks, Bull tractors and Warner trailers, under the supervision of the Northwest Buick Co.

C. E. Barnes has been appointed manager of the Divisadero Street Garage, San Francisco.

E. H. Paul has purchased the Panhandle Garage at 1213 Fell Street, San Francisco, and installed a complete line of accessories.

F. N. Nelson, formerly connected with the Franklin dealer, has opened a general repair and overhauling shop at 680-688 Valencia Street, San Francisco.

Keaton Tire & Rubber Co., Oakland, located at 2811 Broadway, was opened with special ceremonies on March 1st.

The Moreland Motor Truck Co. have opened a branch in Oakland, at 2919 Broadway, under the management of W. A. Daley.

CANADA

D. A. Wadsworth, Winnipeg, Man., who formerly operated the St. Johns Garage, has taken over the William Avenue Garage from C. H. Webb & Co., and will conduct the business along general garage lines. C. H. Webb still retains the agency for Paige cars and will continue to occupy the office at 363 William Avenue.

The Champion Spark Plug Co., Toledo, Ohio, has opened a factory and office at 14 Sandwich Street, West, Windsor, Ont.

G. A. Strickland, Victoria, B. C., formerly sales manager of the Wood Motor Co., Ltd., has taken over the management of the Paramount Motor & Accessories Co.

The Arthur & Rand Tire Company, 1267 Granville Street, Vancouver, B. C., is a new tire firm. Both members of the firm are well known in the city, Arthur having been connected with E. E. Rand for the past eleven years and Rand formerly with C. M. Chislett, Dominion tire dealer.

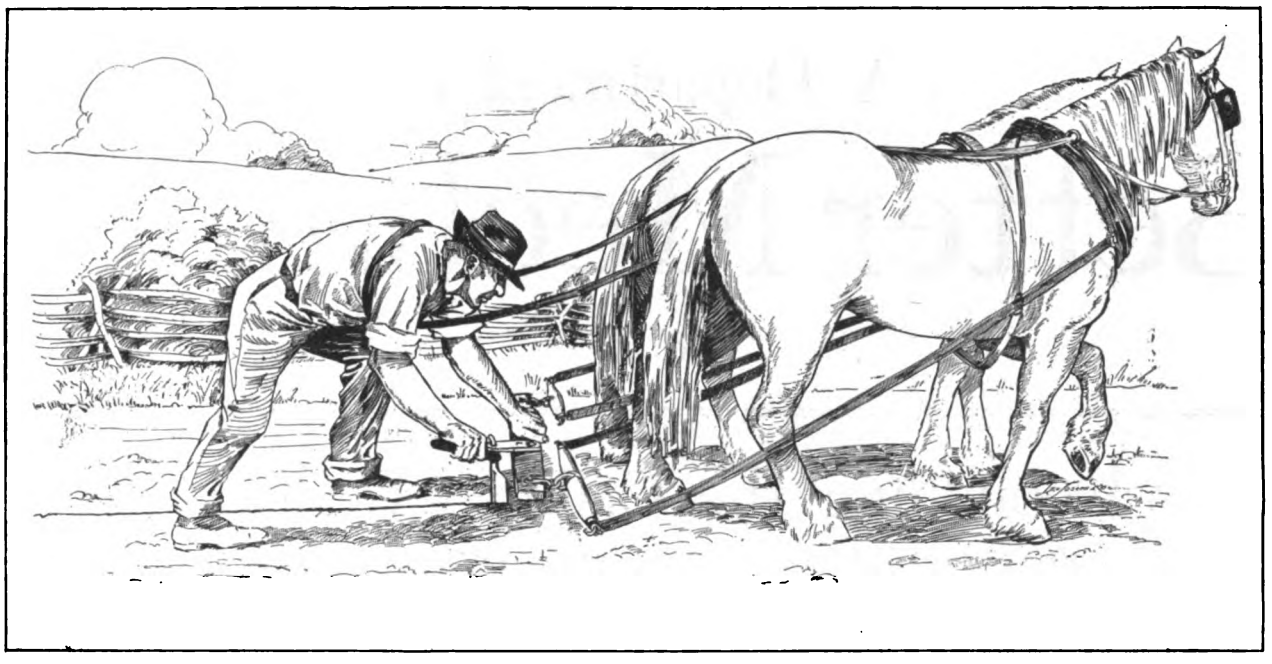
Thos. Archibald, Chilliwack, B. C., who has been for a number of years in the employ of T. L. Lillie, has taken over the Empress Garage. A full line of accessories will be stocked, and new equipment added.

Where Cleanliness and Order Prevail



This is the new store of the Herrick Auto Supply Co., in Bloomington, Ill. There is a place for everything and everything is in its place

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Plowing With Razors

By Ray W. Sherman

REILLY ambled meekly into the office and sat down at his desk for the first time in three weeks. The grippe sure had put lead in his heels.

As a starter he picked up a letter, just to see if he could lift it and stand the strain of reading it. After about three letters he leaned back in the chair, gazed out the window a minute and said:

"Tommy, I guess you can keep on answering the mail for a couple of days."

Wherewith Tommy Trumbull, junior salesman, picked up again the job he had been doing for three weeks. Reilly continued to stare out the window to the springlike street which would soon be filled with summer prospects.

"Tommy," said Reilly.

"Yes."

About You and Me

"You know, I read a couple of books and a lot of magazines while I was in bed. I read somewhere, I don't remember where, what one man said about you and me and all the rest of us beings in this business. I think he must have been aiming at the automobile business."

"Yes." Tommy kept on reading letters. Reilly looked out the window and talked.

"The principal thing that stuck in my mind was what he said about the efficiency of a lot of us. He said we are like a lot of men who are plowing with razors. Do you get that? Plowing with razors!"

"Just imagine, Tommy, a man out in the fields with a team of horses hitched to a Wade & Butcher razor. The man bends over and carefully holds the razor into the earth while the horses idle their time away drawing the fool thing across the field.

"The man is all bent over, his back aches, he is working like the very devil and all the result he gets is a little scratch in the dirt. His razor furrow isn't even a furrow. It's a blemish on an otherwise good looking field. And the man wonders why life is so hard and business so unproductive and money so hard to get and he keeps his nose down close to the fertile earth and drudges his life away. He never thinks of getting a real plow and getting something out of the fertile earth that God has laid at his feet.

"That's just like a couple of million people in this automobile business, Tommy, when you stop to think about it. They are plowing with razors. Lots of times you and I plow with razors. We all do it, but some people do it all the time. That's why the progress of some people is so slow that they look as though they were going backward.

Unless His Razor Breaks

"Now, take Dickton, the Sennett dealer in Southport. He has been plowing with razors for years, and I'm afraid he always will—unless his razor breaks and he quits entirely. He has a good agency, a good location, a good building and everything fine for a good business—but he just struggles along. He is always complaining about how little business he gets and how poor he is.

"Dickton has no prospect file that amounts to anything. He has some names on cards in a little drawer, and whenever one of the prospects buys a car Dickton puts the card in another drawer that he calls his owner's file. But this prospect file doesn't mean much to Dickton. He never makes much use of it. He never sends letters or literature to the prospects. He never plans campaigns and goes after a bunch of prospects. If a name is handed to him he puts it in the file and then sort of sits around and waits for the man to come in and buy.

"Dickton says he can't afford a salesman because there isn't business enough in Southport. He says there wouldn't be anything for the salesman to do—although he could let him wash the windows. Dickton makes a few calls now and then. He runs out once in a while to see a prospect when the spirit moves him, but he never sees that these prospects should be made the foundation stone of his business and that he should use his brains to the limit.

Won't Let Brain Work

"He is a very intelligent man if he would only let his brain work in his business—but he doesn't. He lets only a small part of his brain work. If he got up on his hind legs and went after business with his full ability he would be putting a plow into the fertile Southport field and a wonderful crop would develop. As it is he is plowing with razors.

"And the country is full of garagemen and repairmen who are plowing with razors. They wear overalls when it isn't necessary. They keep their noses down close to the grease and the dirt. They don't see that it would be worth their while and a money-making job to study the business—and plan.

"And there are salesmen, thousands of them, who work aimlessly—and hard. They don't plan their time. They don't make a study of selling their car or their accessory or whatever they sell. They go along in the way they have always gone. There is a better way of selling—there must be. They can be better salesmen. They can make more money. But to do this they must think out a way to do it. They must get into the habit of using their brains. They must throw away the razor and get a plow."

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A Department of

Better Mechanics

No. 16

Rebuilding the Cadillac Radiator

A Method That Is Certain, Inexpensive and Permanent. It May Be Used on Any Radiator of Tubular Construction

THREE METHODS AVAILABLE

RADIATOR repair is one of the least understood jobs in the repairshop, yet one that is often necessary. Carelessness on the part of the driver either in letting the water freeze or in running into something is about the only thing that will cause a radiator to leak.

Three methods of repair are commonly used. The first is to place some sort of a compound in the radiator, sealing the leak. The second is to force the fins to one side, exposing the leak, and soldering it up. The third, in the case of a split tube, is to cut out that portion of the tube that is leaky, and solder up the ends, Fig. 3.

The first method should be avoided. Though only a few tubes may leak, the compound affects all tubes alike, impairing their efficiency. The amount of compound to be used is usually left to the discretion of the workman and too much of it may seriously affect the proper cooling of the radiator.

The second method is the best of the three and is practical for any number of leaks.

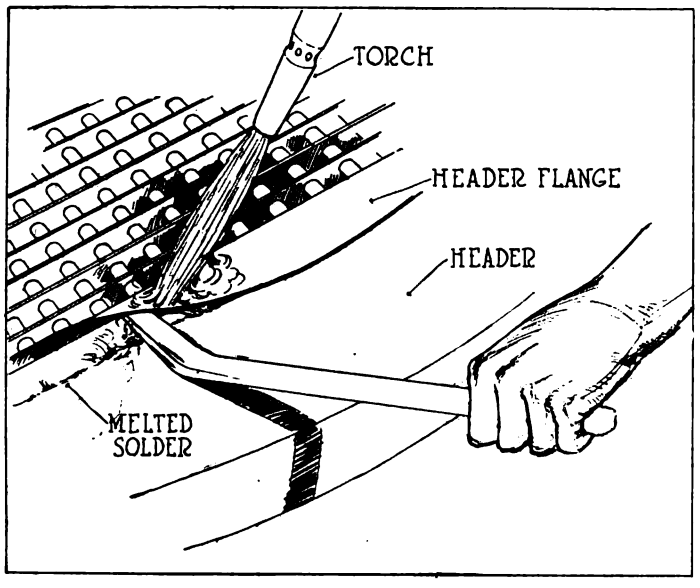
The third method is also practical when not more than 2 or 3 per cent of the tubes are affected. It is important that the tube be cut and soldered at the top of the tube as well as just below the leak.

Rarely, however, are one or two tubes alone injured, and the method herein outlined is to be recommended. In short, it is to tear the radiator down, removing the top and bottom headers and expose the tubes, find the leaky tubes, and to solder an inner tube into them, closeing all leaks. After this the radiator is assembled.

To do the job efficiently, a certain amount of equipment is necessary. The first is an oxy-acetylene welding outfit, having a torch fitted with the smallest possible tip. This is used to melt and

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Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Buick—Rear axle adjustment	8	Jan. 31
Chalmers—Valve and ignition timing	9	Feb. 7
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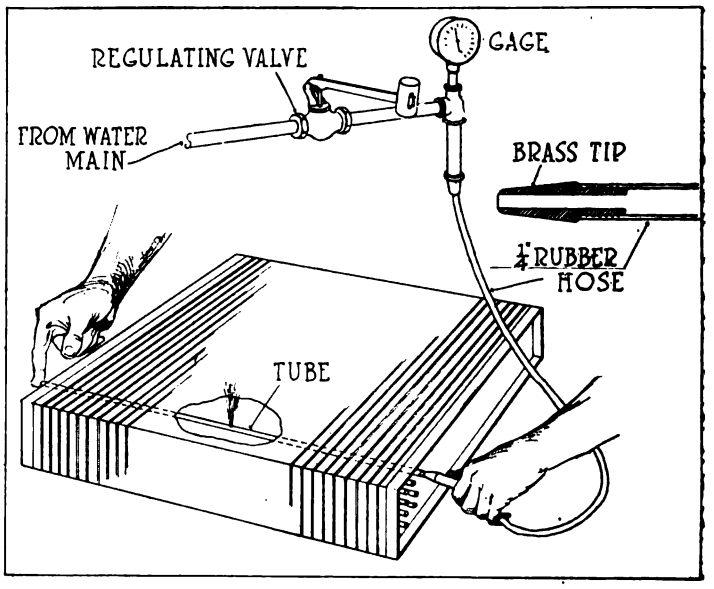


Fig. 1—Left—Removing the header from the radiator body is done by heating the soldered flange only, and as the solder melts a bent screwdriver is used to pry the flange loose. Fig. 2—Right—Radiator testing stand

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remove the headers, and again in rebuilding the radiator. A common gasoline torch cannot be used, because the flame is not concentrated, and would melt the solder holding the tubes in place when the headers were being removed.

A properly constructed testing device must be used. The one illustrated is suitable. Water pressure is used and the leak determined. The water is taken from the pipe line, through a regulating valve that steps the pressure down to about 15 lb., as shown by a pressure gage. Ordinary city pressure should never be used for testing without a regulating valve. A greater pressure than 15 lb. might burst a tube and 10 lb. is as much as should be used in testing the top and bottom headers. The water is carried through a rubber tube to the tube to be tested, the end of the rubber tube being fitted with a brass tip to facilitate insertion in the tube to be tested.

SUBSTITUTE FOR REGULATOR

Where a pressure regulator cannot be used with a city water supply, a simple pipe may be run up through the second story or roof and a sufficient head for testing be obtained by filling this with water. Each foot of head would have about half a pound pressure, or to be exact, a 23 ft. head would furnish a pressure of 10 lb.

All of the radiator tubes must be cleaned and straightened to permit the insertion of the inner copper repair tubes. This is done by running a length of 7/32 in. rod through the tubes. This rod is mounted on a file handle, as shown in Fig. 4.

The copper tubing used in making this repair is extra thin, 7/32 in. outside diameter tubing, and may be purchased from any jobber. It is somewhat expensive, but inasmuch as a small amount of it may save a whole radiator, its use is in real economy.

The balance of the necessary tools comprises a knife, prick punch, emery paper, soldering paste, solder and a light hammer. Then, having the equipment, tools and idea of what is to be done, this is the way to do the job.

HOW TO DO IT

1—Drain and remove radiator.

2—Place radiator face downward on the bench, and using the oxy-acetylene torch, unsolder the lugs holding the shell to the body of the radiator, and remove the shell.

3—Still using the torch, heat the lower header flange and pry it loose from the header with a bent screwdriver, as shown in Fig. 1. The flame must be concentrated on that part that is hanging, and the flame should not be held too long in one place, or the solder holding the tubes in the header may be melted. It is not an easy job to remove the header, and the work must be carefully done, so that neither the flange nor the header is injured, and may be soldered together again.

4—In a similar manner, remove the top header. Both ends of the radiator tubes are now exposed.

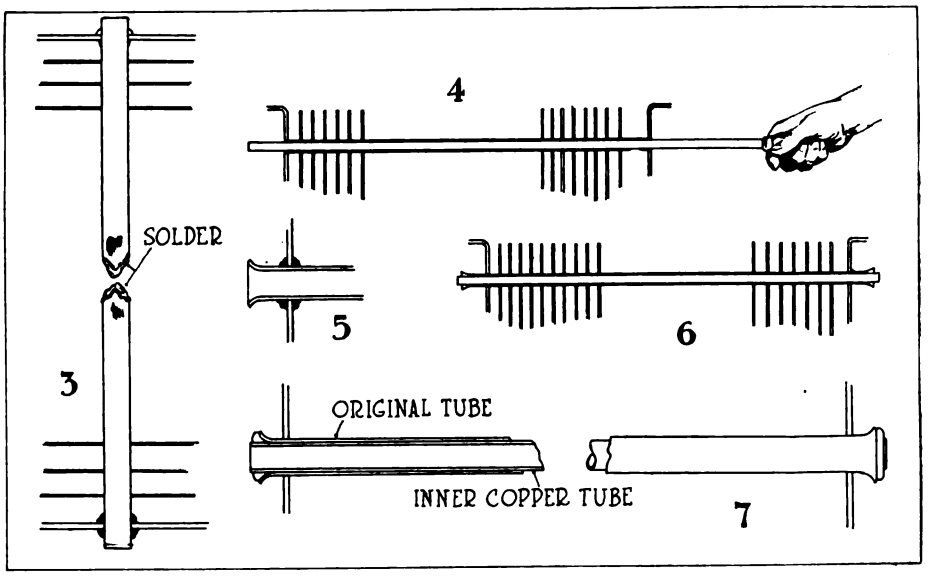


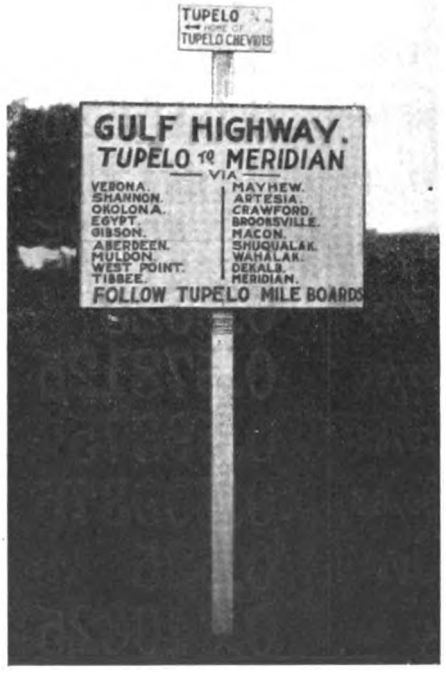
Fig. 3—Left—Method of cutting out a leaky section and soldering up the tubes. Fig. 4—Upper—The tubes are cleaned by running a rod through them. Fig. 5—Center—The ends of the tube are made bell-mouthed with a prick punch. Fig. 6—Right—Another tube is slid inside of this one. Fig. 7—Lower—The projecting ends of the two tubes are soldered together

5—Using the rod as shown in Fig. 4, clean out each tube, one by one. This should be done before the testing, as the solder from some previously repaired leak may be removed, causing a leak.

6—Place the radiator on the testing stand, as shown in Fig. 2, and test each tube, one by one, determining whether or not it leaks. If a leak is found, mark that tube with a V made on the header plate with a knife.

7—Replace the radiator on the soldering bench.

A Guide Post Idea



This is a neat guide post that is not being put up by a dealer or a garageman but by a dry goods mill. But it might serve as an excellent model for a dealer or a garageman

8—Make both ends of all the leaky tubes bell-mouthed, as shown in Fig. 5, using a prick punch as an expander.

9—Scrape the inside of the bell-mouthed tubes clean and bright with a knife.

10—Slide the thin 7/32 in. copper tube into one of the leaky tubes, until its end projects about 1/16 beyond the bell-mouthed end of the leaky tube. See Fig. 6.

11—Cut the other end off with a knife, so that it projects about 1/16 in.

12—Repeat with each of the leaky tubes.

13—Apply the soldering paste to the tube ends, and using a concentrated oxy-acetylene flame, heat the tip of the thin inner tube, and the bell-mouthed tube, and run solder into the joint as shown in Fig. 7.

14—Repeat this with each tube end, taking care not to melt the solder holding the original tube to the header end plate.

15—Straighten and clean the header flanges.

16—Replace the upper header, and carefully solder it to its header flange.

17—Replace the lower header, and solder it to its header flange.

18—Plug all inlet and outlet holes in the radiator, and test the radiator under 10 lb. water pressure to see that the flange joints are tight.

19—Replace the radiator shell, and resolder the retaining lugs.

20—Replace and refill the radiator.

In using this method it should be remembered that the tubes repaired by inserting the thin inner tubes are not as efficient as the original tubes because there is no fused metal contact between the inner tube and the fins of the radiator.

There is therefore a limit to the number of tubes it is practical to repair in this manner.

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DECIMAL EQUIVALENTS OF FRACTIONAL PARTS OF AN INCH

Fractions.	Decimals.	Fractions.	Decimals.	Fractions.	Decimals.
1/64	0.015625	11/32	0.34375	43/64	0.671875
1/32	0.03125	23/64	0.359375	11/16	0.6875
3/64	0.046875	3/8	0.375	45/64	0.703125
1/16	0.0625	25/64	0.390625	23/32	0.71875
5/64	0.078125	13/32	0.40625	47/64	0.734375
3/32	0.09375	27/64	0.421875	3/4	0.75
7/64	0.109375	7/16	0.4375	49/64	0.765625
1/8	0.125	29/64	0.453125	25/32	0.78125
9/64	0.140625	15/32	0.46875	51/46	0.796875
5/32	0.15625	31/64	0.484375	13/16	0.8125
11/64	0.171875	1/2	0.5	53/64	0.828125
3/16	0.1875	33/64	0.515625	27/32	0.84375
13/64	0.203125	17/32	0.53125	55/64	0.859375
7/32	0.21875	35/64	0.546875	7/8	0.875
15/64	0.234375	9/16	0.5625	57/64	0.890625
1/4	0.25	37/64	0.578125	29/32	0.90625
17/64	0.265625	19/32	0.59375	59/64	0.921875
9/32	0.28125	39/64	0.609375	15/16	0.9375
19/64	0.296875	5/8	0.625	61/64	0.953125
5/16	0.3125	41/64	0.640625	31/32	0.96875
21/64	0.328125	21/32	0.65625	63/64	0.984375

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12,800 Motor Cars For Rocky Mountain States in 1917

THERE has been no great boom in this territory during the year gone by, but there has been a slow and steady increase in prosperity that will bring sales of cars 20 per cent. higher in 1917 than in 1916

DENVER, March 24—The three Rocky Mountain States, comprising the territory supplied by Denver distributers, are counted upon to buy 12,800 motor cars this year. Wyoming and New Mexico are expected to take 3000 each and Colorado the other 6800.

This number of sales would mean a gain of only 21 per cent over last year's total registration of 60,224 for the three States, while that figure showed an increase of 22,677 cars, or 60 per cent, over the 1915 registration of 37,547.

Several dealers, highly optimistic on account of last year's heavy sales and present cheering prospects, predict a far bigger gain for 1917 than the carefully studied estimates made by officials of these States, who have aimed to be extra conservative in furnishing figures for the Motor World. They have sought to leave ample margin for any emergency that might upset the motor car business in their respective States. In New Mexico, for example, the registration for only 2½ months of this year, which is 9045, is 817 cars beyond the total number registered in 1916.

First Show in 2 Years

So the opening of Denver's motor show to-day, the first show here in 2 years, finds all branches of the trade throughout the Rocky Mountain territory enthusiastic over the favorable outlook for a lively year's business. And this enthusiasm on the part of the motor tradesmen is backed up substantially by a thriving condition of all the leading industries in the district.

The show event has thirty-nine pleasure cars and five commercial cars and five accessory exhibits. It is in Mammoth Hall, East Colfax Avenue and Clarkson Street, 8 blocks from the center of the motor car business section. The affair is a private enterprise, conducted by H. F. Blackwell and E. R. Sowle. The big stores down town are also having Fashion Show Week, and this is expected to help the motor show attendance.

There is no big boom of industry and wages here such as has developed in eastern manufacturing centers handling immense orders for war materials, but there is a steady, vigorous growth in the main industries of the territory, and the motor trade is getting its share of benefit from the added wealth produced.

Wage Earners Are Buying

While the purchase of cars is not nearly so extensive among wage-workers here as in some parts of the nation, still there are occasional sales to mechanics, school teachers, clerical workers and others not far up in the financial scale, and car-ownership is becoming established among a wider range of classes than it was 3 or 4 years ago.

In this particular territory a large part of the gain in sales during the last year or two has been among farmers and stockmen, and this situation promises to continue throughout this year at least, and likely to a considerably more marked degree.

There is now one car for every 26 of the district's 1,565,000 people, and the ratio is growing more rapidly in the rural sections than in the cities. This combined population, according to the latest census estimates for the three States, is distributed as follows: Colorado, 975,000; New Mexico, 400,000; Wyoming, 190,000.

Following is a record of the total number of cars registered the last three years in each State:

	1914	1915	1916
Colorado	18,433	28,571	44,871
New Mexico.....	3,090	5,000	8,228
Wyoming	2,428	3,976	7,125

In all this vast territory of mountains, plains, plateaus, forests, lakes, rivers, farms, ranches, orchards, immense irrigation systems, metal and coal mines, mills, smelters, oil wells and refineries, factories, medicinal springs, waterfalls, entrancing canyons, noted fishing streams, big-game wilds, amazing scenic highways and world-famed national parks—in these three States combined, including one city of 250,000, there are about one-third as many people as in the city of New York.

But these three States provide a motor car market of truly tremendous growth possibilities. They have rich resources yet to be developed, and they are steadily gaining settlers and investors. While the thousands of square miles of higher



Here is a view of part of the first show Denver dealers have staged for 2 years

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and rougher mountain regions will for centuries, and perhaps forever, prevent these States from becoming thickly settled, these same mountains contain billions of dollars in mineral, industrial and scenic wealth, and they will always hold out a glorious invitation to congested districts everywhere to come out into the Rockies for fresh air, far vision and real rest.

Space will allow only a few figures on the wealth increase produced during the last year or two by the main industries of these States, but these will indicate the chief reason for heavy sales of motor cars here, and for the confidence that 1917 will be a year of big sales.

Mining, general agriculture, stock raising, fruit raising, the best sugar industry, manufacturing and the production and refining of oil have all shown tremendous gains, partly from greater output but principally from price increases ranging as high as 200 per cent.

In crops alone, Colorado shows a 1916 production valued at $106,453,000, a gain of $34,480,000 over the value of the 1915 output of $71,973,000.

Wyoming produced 8,030,000 barrels of oil in 1916, worth $40,150,000, a gain of 2,030,000 barrels and $10,150,000 over 1915.

Official figures on New Mexico industrial output could not be secured, but that State's bank clearings of $14,480,516 for 1916 were $4,140,330 above the $10,340,186 for 1915. Wyoming's output in mining, agriculture, livestock and manufacturing also showed substantial gains, the total production of all industries being valued at $140,233,678 for 1916 as against $115,817,333 for 1915, while the assessed valuation of property made a growth of nearly $17,000,000 during that year.

In the same period Colorado gained about $12,000,000 in manufacturing output, nearly $14,000,000 in livestock, and $37,864,863.37 in bank deposits. Seventeen new State banks were established in Colorado during the year, representing a total capital stock of $7,313,100, while the total resources alone of the banks under State supervision is now more than $78,000,000, or double that of 6 years ago.

Colorado farmers last year sold potatoes at 1¼ to 3¼ cents a pound, and fancy grades as high as 4 cents, while the highest price in 1915 was 1¼ cents—equal to the lowest for last year's crop. Onions have brought as high as 10 cents a pound, fully 200 per cent higher than the 1915 price, and some farmers with a big onion crop have talked of buying an extra car as an irresistible inducement for capable and steady farm hands.

Apples have sold at an exceptionally high figure, at least a third more than the year previous, and other soil products have brought similar gasoline-burning returns.

All three States have been developing highways extensively, and they now have enough good roads for 25,000 miles of comfortable travel by motor—a combination of circle scenic trips equal to the distance around the earth.

The faster the farmers buy cars, the stronger the sentiment for good roads, as the motor car quickly and practically educates the farmer with a husky pocketbook regarding the economic value of both motor cars and dependable roads for either making money or enjoying the use of it.

Likewise, better roads mean more car sales, and also better farm development and more farmer settlers. Neither car dealers nor other good roads workers claim that this more-farmers-more-cars more-roads-more-farmers method of progress is a discovery of perpetual motion, but they do hold that the system ought to be, and can be, carried out to make an end of perpetual mud, chuckholes, car damages, etc.

Leading distributers say that the motor car business is just getting well started in the Rocky Mountain territory, and they predict that speedway records will soon look like wheelbarrow travel in comparison with sales records in this territory.

The total revenue from motor car license fees in Colorado, Wyoming and New Mexico for 1916 was $281,283, practically all of which went into State and county road funds. The taxation value placed upon the total number of cars in the three States last year was approximately $23,400,000.

Trenton's Pots Reflect Prosperity

Clay Products Are an Indication of Conditions

TRENTON, N. J., March 24—Trenton is one of the most prosperous cities in the country. Nor is its prosperity due to war orders, as there are very few if any firms engaged in this industry. Its leading industries are the largest to be found anywhere. The general prosperity of the city is not only reflected in the size and scope of the various manufacturers, but in the thrift of its inhabitants as evidenced by the savings deposits at the seven banking institutions.

The principal industry of which the capital city boasts is pottery. The last state industrial census covering this industry has not as yet been compiled, but on the basis of the 1915 census it can be computed at a big increase. In 1915 the value of pottery products in the state was equal to the total capital invested; i. e., $13,000,000.

Of the 88 establishments in the state 42 are located in Trenton. In the year for which figures are available the number of employes was 11,000, and the total wages paid $4,000,000. Trenton potteries are divided into three general classes or grades. There are the sanitary potteries, or those that make bathroom fixtures; the electrical, or those that make spark plugs, switches, sockets and other porcelain products; and the general manufacturers, making dinner and hotel ware.

The next largest single industry in the city is the immense wire and cable plants of John A. Roebling's Sons Co. This firm is one of the largest manufacturers in the country of such products as cables, tramways and suspension bridge products.

$21,000,000 in Output

The annual output of this and other firms manufacturing similar products is approximately $21,000,000. In the 13 properties comprising this immense industry there are 6000 employes whose wages total $4,000,000. The capital invested in these properties is $14,000,000.

But as a rubber center, Trenton might cause Akron some little concern. In the total value of its rubber production this city ranks second. There are 19 plants here, the principal ones being the makers of the following tires and tubes: Thermoid, DeLion, Ajax, Acme, Empire, Hamilton, Globe, United Globe, Semple and Essex.

There is also a big industry here in the manufacture of hard rubber goods, such as battery cases, radiator caps, telephone transmitters. The total output of all rubber products is approximately $17,000,000. With the growth of the automobile industry these firms are rapidly increasing in size and production.

Yet this does not comprise everything. The Cooke Linoleum Co., is one of the largest in the country. About 600 men are employed in this plant. The tremendous production of this concern can be imagined when it is known that a single year's output of linoleum, 3 yards wide, would stretch 6000 miles, or from Liverpool to San Francisco. There are five brass and iron foundries here employing a large number of men. In this industry Trenton ranks about fourth. The annual production is in excess of $4,000,000.

Taken altogether there are 169 establishments in the city whose total invested capital is $55,000,000. In 1915 the output of all combined was $11,000,000 over and above the total invested capital. Of the 23,000 employes, only 360 are children. Wages amount to about $14,500,000.

The question naturally to arise at the last statement is, What do the people do with their money? A short time ago

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there was only one savings institution in Trenton. All that the people had to save was put in this one bank. Moved by a spirit of necessity as much as progressiveness, the four national banks and the two trust companies instituted savings departments to assist the people in their thrifty tendencies.

It is not known what are the savings deposits of all the banks, but those at the last call on Dec. 27, 1916, were $6,292,413. The figures of all banks at that time were as follows:

Capital	$2,050,000
Surplus	3,348,870
Deposits	25,273,925

Bank clearances reflect the general prosperity of Trenton. By years they were:

1916	$106,936,000
1915	99,501,000
1914	92,551,000
1913	97,850,000

Trenton is in the center of a very rich agricultural district. This consists mainly of truck farming, as the soil of New Jersey is not in condition for cereal crops. Trenton, being accessible by rail and water, is the natural outlet for farm products for many miles around. It is also the buying center for the same rural population, for implements and automobiles.

The territory for 30 miles around is more or less dependent upon Trenton, giving this city a source of approximately 50,000 potential customers. Realizing this, dealers had a number of trucks on display at the show, which succeeded in attracting some attention from the rural districts. The following makes of auto trucks were on exhibition: Rush, Autocar, G. M. C., Vim, Packard, Service, Republic, Dearborn.

Used Car Price Record
(*See pages 8 and 9*)

30,000 Attend Trenton Show

Broad Aisles and Open Exhibits Prevented Overcrowding

TRENTON, N. J., March 24—Bigger, better and more beautiful would be proper terms to describe the second annual show of the Trenton Automobile Trade Association which closed here tonight at the second regiment armory. Roughly estimated, 30,000 people attended, in spite of inclement weather on the first day.

From the standpoint of sales the show was a decided success. The number of cars sold is not known at present, but if the general prosperity of Trenton territory this year is to be taken as an indication of an increase over the show held last year, sales of all makes of cars should exceed 175.

The decorations were decidedly appropriate, in that they heralded the advent of spring very appropriately. The decorators' bill was $3,000. Large pink bunting streamers, interspersed with long lines of green, extended from the center of the roof down to the balconies, which also were elaborately decorated. Japanese cherry trees in full bloom were copiously scattered around between the automobiles.

Those who were present at the shows in other cities, especially Philadelphia last January, appreciated the broad aisles and the wide spacing between cars, a feature which is commendable because it allowed free passage and a thorough inspection of all cars on display.

The armory contains 40,000 sq. ft. of floor space. This was divided into 43 exhibition squares. There were 40 exhibitors, including a few Philadelphia dealers. Altogether 160 cars were exhibited, in addition to a wide assortment of accessories represented by 16 dealers.

Space to dealers was sold at the rate of 30 cents a foot. The allotment of tickets was apportioned among the dealers according to the size of space: 100 per space. These tickets were sold to dealers at $15 per hundred. Complimentary tickets upon the part of the association were entirely tabooed. It is expected that when the balance from the show is struck those who exhibited will receive a rebate of 70 per cent. Last year the rebate, after the annual banquet money was deducted, was 65 per cent.

The attendance during the four days of the show was of a mixed character. As an admission of 25 cents was charged the attendance consisted almost entirely of those who had the buying of a car in view. Of this number fully 3000 were admitted on dealers' tickets. It was estimated by President John L. Brock that about 20 per cent of both attendance and purchases were from the surrounding agricultural districts, the rest comprising business men and manufacturers in Trenton. The sales territory of local dealers extends over an area of 25 miles, or as far south in that direction as the Philadelphia territory begins.

In the amount of registration, Trenton stands fifth in the state. The number of licenses will probably exceed 150,000 this year, of which 4500 are in this city. This would give one car to every 30 people, a distribution that compares favorably with other communities, especially when it is considered that Trenton is a thickly populated industrial center, with the wealth tied up in the hands of wage earners.

The credit for the success of the show is due to the following members of the dealers' association: President, John L. Brock, Brock's Garage; vice-president, Claudius P. Weeden, C. P. Weeden Motor Co.; secretary, Oliver O. Moore; treasurer, Arthur Perkins; director, Norman P. Bruck.

Speedway for Columbus

COLUMBUS, OHIO, March 24—The Columbus Motor Speedway and Horse Racing Co. is the name of a new corporation which will be incorporated under the laws of Ohio with a capital of $200,000 to build a motor speedway. The project has the backing of a number of influential Columbus men. A site has been selected about 1½ miles from the center of the city, and work of construction will be started as soon as the details are arranged. It is planned to construct a 2-mile race course, modeled after the one at Indianapolis, and also a horse racing course. John Y. Bassell, formerly secretary of the Columbus Chamber of Commerce, is president and general manager of the company.

Studebaker Machine Gun Cars

DETROIT, March 24—The Studebaker Corp. has made a number of machine gun motor cars for the government. These are being tried out in New Mexico, and have been found to maintain a speed of 25 m.p.h. Each car contains two machine guns, 20,000 rounds of ammunition, tools, water, gas and oil, field rations and seven passengers besides the driver, a total weight of 2½ tons.

Philadelphia Demands "Proof of Ownership"

PHILADELPHIA, March 24—A bill has been introduced into the Pennsylvania legislature which requires dealers to furnish the buyer with a bill of sale as proof of the latter's ownership. Failure to produce the evidence would subject the car owner to a fine of $500 or imprisonment of not less than six months.

Canada Buying Accessories

MONTREAL, March 24—A marked demand for automobile accessories from the country districts and small cities in Ontario has been noted by wholesalers in Montreal. The demand is not only active, but is showing call for very varied range of goods, and orders coming in are for as far forward as early fall. Advances in prices of the accessories made of steel are not at all unlikely as the season advances owing to the generally firm trend of affairs in the markets.

Hazleton Garagemen Organize

HAZLETON, PA., March 24—Garagemen have organized the Hazleton Automobile Trade Association, and have 12 members so far. The new organization was formed primarily as a protection against grafting constables and to eliminate poor payers among car owners. Adam Eidam is president, and Charles H. Rice, secretary and treasurer.

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Spending Money Plentiful in Pittsburgh

STEEL, coal and oil and the great indexes which point to the financial condition of Pittsburgh. The man higher up is happy and the pay of the wage earner is 25 per cent higher now than at any time during the past 10 years.

PITTSBURGH, March 24—In the mass of opinions exchanged at the automobile show, there is one line of talk that cannot fail to escape the attention, that is, that the sales of cars in Greater Pittsburgh this year will be far greater than ever before.

The real problem is how to get cars and get them into the hands of buyers. Dealers are limited in their hopes and anticipations only by the realization that it will be difficult to deliver anything like the total of cars which are sure to be sold between now and June 1.

Greater Pittsburgh to-day has more money, more business, more manufacturing and more men and women employed than ever before in its history. It probably would be safe to say that the per capita earnings of the population are 25 per cent larger than the normal wages per capita the past 10 years.

Big Steel Center

Pittsburgh is first of all a steel manufacturing center, the greatest center of that industry in the world. It produces at least 10,000,000 tons of steel a year. Its payrolls total, according to latest statistics, about $1,200,000 per day. A few years ago, when Pittsburgh's payrolls reached $1,000,000 per day, for a short time, it was thought that this summit of prosperity would never be overcapped.

Last year the war orders, which brought tens of millions of money to steel manufacturers, caused the wages of steel workers to be increased 10 per cent three times during the year. Before that a single increase in wages during a single year was all that steel workers had ever secured.

This total increase last year of nearly 33 per cent made an enormous gain in the volume of ready cash which these men have to spend.

Another fact. In 1914 and the early part of 1915 the steel industries here were running about 65 per cent of their normal capacity. Now they are running 100 per cent capacity, where they can get enough men to equip the mills for night and day shifts. The steel working public is therefore mighty flush at present, and is well prepared to buy.

Coal is High, Too

Look at the coal industry. In dozens of places coal is now selling at $3 per ton at the mine. In former years many large companies operated at a net profit of not over five cents per ton. Now a large amount of coal is being sold for $3 per ton at the mines, and in some cases $4 where quick and regular delivery can be made.

Big companies selling enormous quantities of coal on contract are getting from $1.25 per ton to $2 or more.

On the basis of $3 coal, there is a net profit of $1 per ton in spite of the enormous increase in the price of mining materials and also the large increase in wages and the cost of shipping.

On coal selling at $1.50 per ton it is reasonable to assume that operators are making a net profit of 50 cents per ton. Is it any wonder, then, that the coal barons of Pittsburgh are paying up deferred dividends and are accumulating big sums for surplus? Is it any surprise, therefore, that dozens of new coal mining operations are being started every week in the Pittsburgh district or that coal lands are bringing a higher price and commanding a more ready sale than ever before?

To-day one of the biggest coal mining operating companies in western Pennsylvania—located at Greensburg, Pa.—secured a mortgage of $2,000,000 through a Pittsburgh trust company to finance its extensive new operations this spring.

Capital is Plentiful

Capital is so plenty now in this district that it is seeking investment daily, and millions of dollars are being poured into the coal mining industry. It is estimated that the total production of coal in the Pittsburgh district now approximates 50,000,000 tons per year. It is certain that all mines are working to capacity where they can get labor and cars. Furthermore, Ohio miners received a big increase in wages last year.

Next month the coal operators of the immediate Pittsburgh district will consider the matter of giving their miners a substantial increase in wages. The coal mining industry, therefore—the second one of Pittsburgh's great industries—is prosperous to its fullest extent.

Take a glance at the oil industry. Only a few years ago oil was selling at from $1 to $1.50 per barrel. To-day Pennsylvania oil is quoted at $3.15. Is

The Officers of the Pittsburgh



Frank D. Saupp, President | *John J. Bell, Gen. Mgr.* | *W. W. Bennett, Treasurer* | *W. H. Moore, Secretary* | *E. H. Kaiser, 2d Vice-Pres.*

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it surprising, then, that there is capital aplenty for oil operators and for exploring new fields. Derricks by the hundred are being erected in western Pennsylvania, eastern Ohio and West Virginia. Wells which had been given up because it did not pay to pump them are now being cleaned out and pumped regularly.

Everything that shows a semblance of producing oil is being hitched on to the pipe line. The Manufacturers' Light & Heat Co. and other big oil operating companies in this district are paying larger dividends, getting more for their stock, employing more men and producing and selling more oil than at any other time in the last 10 years. Every man who has ever had the oil fever has got it now. Every man who ever worked as an apprentice in the oil fields anywhere has a good job now at big wages. The oil centers of western Pennsylvania, eastern Ohio and West Virginia have lots of ready cash.

Glass Wages Are Up

What about the glass industry? In 1916 all the glass workers in Tri-State territory were emplpoyed for the first time since 1907. This year it might be said that all and more are employed. Wages are 10 per cent higher than last year in the glass industry. With the total glass production at $15,000,000 per year the industry is thriving.

Manufacturers have more orders than ever before and are getting higher prices as export business is increasing rapidly, and as they are not broken down in their profits by large importations.

The glass towns in this district are prosperous to an unusual degree and their workers and men are ready to buy, for cash, not only of the necessaries but many of the luxuries of life.

Don't forget that railroad men also are more prosperous than they were. Greater Pittsburgh has an army of these men. The operating crews will receive, under the Adamson law, a big increase in wages, and are very shortly to get under the ruling of the Supreme Court last week a large amount of money for back pay to Jan. 1, 1917.

The thousands of office men employed by the railroads of this district received increases in wages Jan. 1, or shortly after, amounting to from 10 to 20 per cent. Every railroad man is employed. The only question is how to get enough to man the railroads, their shops and their freight terminals properly. The great problem of the railroads in this district now is to keep the turnover down and to keep the payrolls of steadily emplpoyed men up. Railroad towns are accordingly prosperous and their people are ready to spend large sums for automobiles.

The lumber industry, which contributes not a little to the prosperity of Tri-State territory, is at its height now so far as inquiries and orders are concerned. It cannot be said that profits are larger or as much as they have been in some former years, but it is certain that the average lumberman has more money than for many years. It is even more sure that the workers in the lumber camps are getting from 25 to 40 per cent larger wages than 2 years ago, and are more steadily employed. The towns up the Monongahela River on this account, and especially the lumber centers of West Virginia, are extremely prosperous, and every traveling man will contribute from his observation to the statement that business in these towns is going to be fine this summer.

Financially Well Off

Financially, Pittsburgh is amazingly well off this spring. One of her banks has more money by nearly 100 per cent than the surplus of the world-famed bank of England. Bank clearings are now running over $13,000,000 per day. National bank deposits, according to carefully compiled statements 2 weeks ago, now aggregate $347,000,000 in Pittsburgh. This is far more than they have ever shown before and is, in fact, a gain of $87,000,000 over last year.

With bank officials walled in by this vast array of gold, is it any wonder that they are seeking everywhere for a place to invest their capital, and that manufacturers, merchants and legitimate industries of every kind find it comparatively easy to get funds at a reasonable rate of interest?

Pittsburgh's wage earners have ready money far beyond any previous year to invest in homes, necessaries and luxuries for their families.

Although Pittsburgh is not regarded as such a center of agricultural activity as many other cities in this country, the territory which is served by Pittsburgh wholesalers embraces a large number of splendid agricultural counties—perhaps 100 in all. The farmers in these counties are in a daze of prosperity so far as prices go. With wheat over $2 per bushel, potatoes retailing at $4 per bushel, hogs selling at $17 per hundred weight, beef bringing $12 or $14 per hundred weight, eggs selling at around 50 cents per dozen, apples easily marketed at $4 per barrel, and with horses at from $250 up and cows at from $80 to $150 each, the average farmer is no longer looked upon with pity. He is regarded instead as an independent baron who can stay upon his estate and enjoy the freedom of country life to the limit or he can travel widely during his leisure months because he has the wherewithal to go and come at pleasure.

Prospects Are Bright

Pittsburgh dealers have reason to be joyful therefore at the prospects of sales and profits this year. Every one of the basic industries which contribute essentially to the welfare of Greater Pittsburgh is at the height of its prosperity.

Dealers have never received unsolicited so many inquiries as during the past 2 months. The proportion of people who are able to buy and who are looking at cars costing from $1,000 up was never so large.

The number of users who are about to abandon last year's cars—no matter how expensive—and purchase new cars, is far and away ahead of any previous total.

Better still, Pittsburgh's army of wage earners is getting into the automobile market this spring to buy anything up to a $1,000 car. There is no question but that sales of moderate-priced cars to this vast army of wage and salaried people will be at least 40 per cent larger than in any previous year.

The latest statistics published show that Allegheny County has about 14,000 car owners. The best posted dealers in this city argue to-day that before Sept. 1, 1917, this total will have been increased to at least 18,000 or 20,000. The sale of these 4000 cars or more will give Pittsburgh dealers the best year by far which they ever had—if you add to this list of new buyers the number of old users who will purchase new cars.

Can They Get Cars?

The question is, can Pittsburgh dealers secure enough cars to take care of their demands? At present, and for the past 6 weeks, the matter of getting cars has been a most serious problem. Many dealers are not only sold out of every car they have in sight, but also have dozens of customers waiting for demonstrations.

In the counties immediately adjoining Greater Pittsburgh it is probable that there are at least 5000 cars owned and used. These counties, as well as those a little farther out, which are covered by many Pittsburgh agencies, are more prosperous now than ever before.

Their steel plants, their car industries, their factories of every description, their mines and their lumber camps, are busy beyond the dreams of their managers 5 years ago.

Country dealers who secure their cars

Automobile Dealers Association



L. C. Myers Director — *E. J. Thompson* 1st Vice-pres. — *H. H. May* Director — *Eddie C. Bald* Director — *H. W. Morrow* Director

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from Pittsburgh agencies are taking a larger quota of cars this year than in former years, and only beg that they may be allowed enough cars to take care of their rapidly increased inquiries. Farmers especially are buying cars by the dozens and by the hundred. Townships, where 5 years ago there were only a half dozen cars owned, now have from 50 to 100 cars. Towns which in 1914 had perhaps 25 cars now boast of from 75 to 200 licenses.

Pittsburgh Dealers Are Sure of Their Show Building

They Lease Motor Square Garden by the Year and It Holds Lots of Things Beside Car Shows

PITTSBURGH, March 24—Pittsburgh dealers are sure of their show building. And they make greater use of it than the dealers in any other city do of any other show building. The Automobile Dealers' Association of Pittsburgh leases Motor Square Garden by the year and puts on two shows a year, one in the fall and one in the spring. The spring show, which was brought to a close to-night, was the fourteenth and the biggest in so far as attendance is concerned that the association has ever held.

Several years ago the show was held in the Duquesne Gardens, which was large enough at that time but was soon outgrown. Then the dealers had an opportunity to get Motor Square Garden, and 20 of them got together and leased the building for a period of 5 years.

When there are no motor car shows in the building, which is during 50 of the 52 weeks in the year, there is generally something else going on. One week it is a circus, another it is a chicken show, another business show, and so on. John J. Bell, veteran show manager, and champion fast roller skater, manages all the shows for the dealers. He is given a free rein to do as he likes with the building, and he generally manages to have some kind of a show in it nearly every week of the year.

Solve Ticket Problem

The ticket problem has always bothered the Pittsburgh dealers, but this year a plan has been adopted which has eliminated a lot of trouble. Each dealer is supplied with a celluloid ticket, upon which he is required to sign his name. Then, every time he enters the building he must sign his name on a slip of paper and the door man sees that they match.

Two other kinds of tickets are used. One is bright red and is for the use of porters employed by the dealers. It is only good between 8 and 10 in the morning and 5 and 7 in the evening. The other is a purple demonstrators' ticket, and is good only for one hour and not at night. It is good for any number of prospects up to four, and the hour the party leaves the building is entered on the ticket by the doorman.

All told, some 2100 dealer tickets were sent out, and sub-dealers came from Pennsylvania, West Virginia, Ohio and part of New York.

Show in Two Sections

The show was well arranged and though there was not an inch of space to spare there was no effect of crowding such as is common at many other shows. The crowding was largely eliminated by staging a section of the show about 2½ miles away in the Hotel Shenley. Here only the higher priced cars such as White, Peerless, Packard, Pierce-Arrow, Simplex, Pathfinder, etc., were exhibited. This was in effect an automobile salon like that held in New York and Chicago. However, it did not draw very well, and with few exceptions the dealers do not seem in favor of repeating the venture.

Spaces Are Uniform

All spaces at the Motor Square Garden show are uniform in size, 16 x 19, and dealers were limited to two spaces. Many of them had only one space, though the majority had two. The Hiland Automobile Co., Dodge and Peerless dealer, had about one-third of the end of the hall, the other two-thirds being taken by the May-Kelleher Co., Pierce-Arrow dealer, and the Bakewell Motor Car Co., Liberty and Owen Magnetic dealer. These three companies have what are virtually separate shows all their own, and have taken certain decorating liberties which have helped them greatly.

Owing to the short depth of the spaces—16 ft.—not all dealers found it possible to place cars head on to the aisles, and this had a good effect, for it broke the monotony and also gave more space at the sides of the cars for prospects.

Stanley Steamer Attracts

The Stein-Williams Co., Mitchell and Stanley steamer distributer, had a particularly pleasing exhibit. The Stanley steam chassis was placed directly in the center with plenty of space all around it, and all the space was needed because the chassis was seldom visible from the aisles because of the crowds around it. Stein-Williams, by the way, have only had the Stanley for about 6 weeks and already have sold 22 cars. The whole of the exhibit was carpeted with rugs.

Quite a number of exhibitors made excellent use of Crex grass rugs. These are every bit as decorative as other rugs, cost a lot less and are more easily kept clean.

The Allen dealer had a particularly well-arranged exhibit and made good use of a pillar that might otherwise have been an obstruction by putting a small desk behind it and plants on each side, thus turning the pillar into part of the exhibit.

The Franklin Pittsburgh Co., Franklin dealer, reversed the usual arrangement by placing a long settee and a couple of chairs on the aisle line and facing into the exhibit. Thus they formed a fence, making two clearly defined entrances, and the position of the chairs insured the prospect's attention being focussed on the cars and not on the crowds in the aisle.

Electrics Going Well

Pittsburgh is a city of hills. Yet despite this the electric car is taking well. Estimates place the total number in use at about 350, and electric car dealers report that the prospects for a good electric year were never brighter. Bishop & Ports, Inc., operating the largest electric garage in the city, quote garage rates at $35 a month, this to include all service and also calling for and delivering cars. This firm late last fall took the agency for the Woods Dual Power car, and in the face of one of the hardest winters Pittsburghers have had delivered six.

The used car situation is a difficult one owing to the terrible hills and to the generally poor pavements. Dealers state that though a used car may look pretty good nothing can be told about its mechanical condition without a thorough test. The hills and the poor roads and bad pavements are particularly hard on cars.

Frank D. Saupp (Dodge & Peerless) is president of the association, the other officers being: First vice-president, E. H. Kiser (Winton); second vice-president, L. C. Myers (Ohio electric); secretary, W. H. Moore (White); treasurer, W. W. Bennett (King); directors, Eddie C. Bald (Hudson), H. H. May (Pierce-Arrow), H. W. Morrow (Pathfinder and Haynes).

New Koehler Truck

NEWARK, N. J., March 27—The H. J. Koehler Motors Co. has brought out a new model styled K-1¼, which will supplant the model K, 1-ton truck. The new vehicle has a four-cylinder, 35 hp. overhead valve motor with increased compression and lighter pistons. Rear tires are larger, as are spoke sizes and the front wheel spindles are 2 in. in diameter. Drive is by internal gear and ignition by either Eisemann or Heinze magneto. Between 2000 and 3000 trucks will be produced by January 1, 1918. Deliveries are now being made.

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Houk Wheel Business Is Nucleus of New Company

Big Wire Wheel Corporation Takes Over Houk Interests and Will Expand—Houk, an Officer

NEW YORK, March 26—The Wire Wheel Corp of America has purchased the Houk Mfg. Co., Buffalo, N. Y., and the Geo. W. Houk Co., the latter being the selling organization for the Houk Mfg. Co. Houk retains an active interest, becoming a vice-president of the Wire Wheel Corp.

Besides the entire American rights of the Rudge-Whitworth patents the Wire Wheel Corp. has acquired the Dunlop, Cowles, House and Houk patents, the entire group covering every phase of wire wheel construction, according to the advice of prominent patent attorneys. Negotiations are now under way with other wire wheel makers with a view to issuing licenses.

The Wire Wheel Corp. was formed with $2,000,000 capital by a syndicate in which Bertron, Griscom & Co. and Jamieson, Houston & Graham, Inc., were active. John F. Alvord, president of the Standard Co., Torrington, Conn., the Splitdorf Electrical Co. and the Hendee Mfg. Co. heads the new concern with George W. Houk and R. E. Griscom as vice-presidents and S. A. Fahnestock, secretary and treasurer.

The East Springfield plant of the Hendee Mfg. Co. covering 10½ acres and 175,000 ft. of manufacturing floorspace has been acquired and will produce wire wheels for high-priced cars and also develop wheels for low-priced cars.

The Houk plant at Buffalo will be increased in capacity by 100,000 sq. ft., work on the addition starting May 1, and the production of Houk wheels will be greatly increased. The Houk output increased 300 per cent in 1916 over 1915 and in 1917 to date is running 400 per cent ahead of 1916. Executive committee of the Wire Wheel Corp. is J. F. Alvord, R. E. Graham and R. E. Griscom. Among the directors are these three, Marshall J. Dodge of Bertron, Griscom & Co. and J. S. Bretz, Bearings Co. of America.

The Wire Wheel Corp. has ample funds and expects that the wire wheel market will expand to a marked degree due to its ability to produce in large quantities without fear of patent litigation.

Auto Parts Wins Name Suit

CHICAGO, March 23—The similarity of names between the Auto Parts Co., and the Auto Sales & Parts Co., both manufacturers, jobbers and dealers of Chicago, has resulted in the decision by Judge Charles M. Foell of the Superior Court of Cook County in favor of the Auto Parts Co. perpetually enjoining the Auto Sales & Parts from using a name similar to that of the Auto Parts Co. It is understood that the Auto Sales & Parts in the future will be known as the Auto Needs Co., this change having been made before the decision was rendered. The Auto Needs Co. has appealed.

Harroun Getting Ready

DETROIT, March 24—The first of the machinery for the Harroun Motor Corp. plant has been installed. The floors of the manufacturing and assembly buildings have been laid and as rapidly as these harden the machinery is going into the plant. The floors are being laid from the ends of the T-shaped building, laid out toward the center, and the machinery is following this up as rapidly as the floors harden enough to form a substantial base. If the weather continues mild manufacturing will probably be under way within the next few weeks, as practically all the machinery is on hand and stored within a few hundred yards of the manufacturing and assembly plant.

Orders for 110,000 Ford Cars

DETROIT, March 26—The Ford Motor Co. is 110,000 cars behind its present orders. The company plans the production of the Ford truck sometime in the near future but since it is unable, now, to produce Ford cars in equal quantities with the demand, has put the truck problem to one side temporarily. The company is erecting a huge plant to augment the present one and will probably be able to meet the demand for its product when this is completed.

Fageol Off Market

LOS ANGELES, March 27—The Fageol car, which is produced by the Fageol Motors Co., has virtually been taken off the market for the time being. The car is powered with an aviation motor, produced by the Hall-Scott Motor Co., which at present is devoting all its energies to filling aviation motor orders to the War Department of the government.

National Tire Reorganized

EAST PALESTINE, OHIO, March 27—The National Tire & Rubber Co. has been purchased by a syndicate of local capitalists and reorganized. The name of the company remains unchanged, the new officers being: President, C. L. Merwin; vice-president and general manager. S. L. Warner; secretary, E. N. Herrick, treasurer, R. B. Taggart. The company has plans under way to double the capacity of the plant within the next 30 days.

New Willys Sedan Model

TOLEDO, March 27 (Special Telegram)—The Willys-Overland Co. is shortly to bring out a brand new type of body on its four-cylinder Knight-engined chassis. This will be a convertible sedan with the door to the rear compartment in the center and the door to the driver's compartment at the front on the left side. The car will sell for $1,950.

War Clouds Cause Close of Indianapolis Track

Speedway Offered to Government —Chicago and Cincinnati Ask for Date but May Be Denied

CHICAGO, March 26—The decision of the Indianapolis speedway not to hold any motor car races this year and to call off its Decoration day 500-mile race scheduled for May 30, as announced by James A. Allison, means that the strongest supporter of racing in the country is out of the sport for this year and perhaps longer in case war continues. The Indianapolis speedway has called off its entire racing program solely because its owners do not believe that there should be professional sport, such as motor car racing, with the country in a state of war. Allison believes in amateur sports during war time but not professional sport.

The action of the Indianapolis speedway authorities is not going to place any barrier in the way of other speedways, and as a result its team of racing cars is for sale. The Prest-O-Lite racing team, owned by Allison, consists of two Peugeots and three Premiers. All are for sale with the exception of John Aitken's Peugeot which is being locked up for the year. The drivers of the Indianapolis team are free to make whatever arrangements they may want to.

The racing factory, built near the speedway, in which Mr. Allison was going to build racing cars and parts, is well fitted with lathes, milling machines, grinders, and all other kinds of necessary machinery, has been offered to the government to use as it sees fit. Besides this the entire Indianapolis speedway with its 2½ mile brick track has been offered to the government so that it can be used as an aviation field or for any other purpose desired.

It is doubtful what influence the withdrawal of Indianapolis from speedway racing will have on other speedways. As soon as Indianapolis' decision to withdraw was known, the Chicago speedway and also Cincinnati speedway applied to the American Automobile Association contest board, New York, for sanctions for Decoration day race. It is expected that the contest board will oppose such a plan and rule that Decoration day should not be given any speedway sanction. There is a strong feeling that this day belongs to the soldiers and in case of war the sentiment would naturally be stronger.

David S. Reid, president of the Chicago Speedway Association, expects that the racing program on his speedway will be carried out as usual this year.

So far as the other speedways are concerned nothing has been received that would indicate that they are out of racing for this year. Cincinnati has requested a Decoration day date. New York speedway, known as Sheepshead

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Bay, is in financial difficulties but promises to get cleared away soon.

The Cincinnati Speedway Co. expects to run its races of June 23 and September 4, as scheduled some months ago, but H. S. Lehman, president, states the speedway will be turned over to the government if in any way it can be used by it. This speedway was built by the citizens of Cincinnati, much as a municipal enterprise. It cost $700,000, and every dollar has been paid.

Packard Raises Truck Prices

DETROIT, March 27—The Packard Motor Car Co. has raised the price of its truck chassis, $100 to $250 on the various models effective March 24. The increase is due to the advanced cost of materials which has been as high as 128 per cent in some instances. The new and old prices follow:

Capacity Tons	New Price	Old Price
1	$2325	$2200
1½	2600	2500
2	3000	2800
3	3600	3400
4	4025	3800
5	4550	4300
6	4800	4550

Deppe Getting Ready

NEW YORK, March 24—The Deppe Motors Corp. announces that all of its stock, consisting of 500,000 shares, par $10, has been underwritten and the company will build passenger cars embodying the inventions covered by the Deppe patents. It will also take a stock interest in established truck, tractor, engine, and aeroplane manufacturing concerns, which will incorporate the Deppe inventions in their products on a royalty basis. The property of the Deppe corporation consists of $1,050,000 in cash and its patents, four of which have been granted, with a number of others pending.

The company was organized the early part of this year to manufacture the Deppe superheated gas generator and engines, under the various patents now held by W. P. Deppe of New York. The Deppe generator is a device which by using a small part of the engine exhaust gases makes a superheated gas of all fuel oils.

The board of directors includes the following: W. P. Deppe; C. E. Parsons, of Parsons & Simpson, consulting engineers; N. D. Lancaster, director of the Howe Scale Co., formerly of R. A. Lancaster & Sons; M. O. Guiss, manufacturer of iron products, and R. B. Sperry, of Sperry & Co., investment securities, who is offering the 100,000 shares of stock to the public.

Battery Profits Top $2,000,000

PHILADELPHIA, March 23—The Electric Storage Battery Co. had its largest year in point of earnings in 1916. Profits were $2,069,977, compared with $1,770,188 in 1915. The surplus this year was the highest in the history of the company, amounting to $932,089, as compared with $710,583 in 1915.

Houston Dealers Form a Used Car Exchange

To Be Financed by Dealers Who Will Use It for the Handling of Cars Offered in Trade

HOUSTON, TEX., March 24—The Houston Automobile Trade Association is rapidly working out a plan for eliminating the troubles connected with the exchange and resale of used cars.

Immediately after the organization convention of the Texas Automobile Dealers Association, March 7 and 8, plans were discussed for the establishment of a used car clearing house in Houston and J. C. Thorpe, general director of the National Automobile Trade Association was present during the several meetings of the Houston dealers and assisted in working out the proposed plan, which is about as follows:

The Houston Automobile Clearing House, Inc., will be organized with a capital stock of $20,000-$25,000, which is to be subscribed by the dealers in units of $100, it being provided that no dealer shall purchase more than five shares.

Only those dealers shall be eligible who are members in good standing of the Houston Automobile Trade Association.

An advisory board of five men shall be chosen who shall have full responsibility for the conduct of the business of the clearing house and they shall meet not less frequently than once a week and after choosing a manager for the clearing house shall confer with him regularly as advisors at the weekly meetings. They shall establish an accurate cost accounting system and make complete reports each month to all of the members of the association.

The manager of the clearing house shall be required to invest a minimum of $500 and not over $1500 in the stock of the clearing house and he shall be directly responsible to the directors.

Immediately upon notice that the clearing house is fully organized and ready to begin business, the dealers shall all be given 30 days' notice to dispose of the used cars in stock, unless they are willing to permit an appraisal committee to place valuations thereon.

At the expiration of this 30-day period all members shall turn over to the manager all used cars in stock and the valuation shall be placed upon them by the appraisal committee that shall be chosen with respect to the manufacturers' list price of cars which they sell, that is, there shall be an appraisal committee consisting of all dealers selling cars listed at $1,000 or less, another committee consisting of the dealers selling cars listed from $1,000 to $2,000, and another committee consisting of dealers selling cars listed above $2,000. These several committees shall fix the valuation of used cars submitted by dealers in their respective class and for the value thus placed the dealer shall receive either negotiable certificates or checks from the managers of the clearing house.

Following the work of the appraisal committees the manager of the clearing house shall have full authority respecting future values.

It will be provided that all owners of used cars desiring to exchange them for new cars shall be referred to the clearing house and receive a statement of the condition of the car and its value which shall be properly recorded, with the understanding that as soon as the sales contract is made for a new car with any member of the clearing house, a negotiable certificate shall be issued which will be accepted by the dealer as cash; the purchaser paying the difference between the used car valuation and the manufacturer's list price, as the term of sale may require.

The manager of the clearing house shall prepare daily reports of all inspections made and valuations fixed and these reports shall be placed in the hands of all members of the clearing house association each day.

The success of the plan depends upon the maintenance of good faith among the dealers, but it is believed that this is assured by the very cordial co-operation that was effective in working out the plans.

Detroit Used Car Show Week

DETROIT, March 26—Six of Detroit's largest automobile sales representatives are arranging for a used car week. The companies are: Packard, Detroit Electric, Bemb-Robinson Co., Hudson distributers, M. A. Young, Reo distributer, Grasser Motor Sales Co., Hupmobile distributer, Devlin Co., Haynes distributer, and Wetmore-Quinn Co., Paige.

Stewart Moves Against Thermos

CHICAGO, March 27 (Special Telegram)—The Stewart Warner Speedometer Corp. has filed suit in the United States District Court against the Auto Parts Co., Chicago distributer of the Thermos vacuum system, manufactured by G. F. Weinberg, Detroit. The suit is based on the Webb Jay patents, under which the Stewart system is manufactured, and is in harmony with others recently instituted against other alleged infringers. While the suit is filed against a distributer, the object is to obtain action on the Thermos vacuum system.

"Shop Early" in Milwaukee

MILWAUKEE, March 27—As a means to stimulate spring sales 45 Milwaukee dealers combined and purchased a two-page spread in the Milwaukee Journal, Sunday, March 25. The ad. called attention to present freight conditions and urged that prospects place orders early.

May Revive Newtone

BROOKLYN, N. Y., March 27—There is a possibility that the Automobile Supply Mfg. Co., maker of the Newtone horn will become a going concern again. Several large creditors are now working to this end, and for this reason the receiver's sale, scheduled for yesterday, has been postponed to April 10.

W. H. Brown Passes Away

CHICAGO, March 27—W. H. Brown, vice-president and treasurer of the Kelley Convertible Auto Truck Co., died Monday, March 19.

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Sheepshead Speedway in a $2,000,000 Difficulty

Coney Island Jockey Club Gets a Foreclosure — Effort Being Made to Revive Venture

NEW YORK, March 26—A new stage was reached in the financial difficulties of the Sheepshead Bay 2-mile motor speedway when the Supreme Court in Brooklyn handed down a decision today ruling that the Sheepshead Bay Speedway Corp. is indebted to the Coney Island Jockey Club to the amount of $2,135,161.86, and grants to the club a judgment of foreclosure on the corporation's exhibition grounds at the old Sheepshead race track. The Sheepshead Bay Speedway Corp. has at present a committee working along the line of financial reorganization and it is expected that the speedway will be continued as it has in the past. The sentiment is strong that New York can support a speedway. Contests up to the present have not been a financial success due to the very heavy overhead charges. When the speedway was built there was not sufficient money subscribed to meet construction obligations, and ever since the first meet there has been a heavy debt. The interest on this, as well as that on the mortgage, has been heavy.

Would Test All Drivers

BOSTON, March 24—Boston dealers are disturbed as a result of a bill which provides that every motorist shall pass a road test. As originally worded it called for a road test for new drivers, but the committee on roads and bridges changed it to make it include every one.

Weather Affects Wisconsin Sales

MILWAUKEE, March 24—The effect of the extreme winter in Wisconsin is noted in the comparative figures of motor car registrations just issued by A. J. Cobban, motor registry clerk of the Secretary of State's department. On March 22 there had been registered 49,885 cars, compared with 43,110 on the same day in 1916. This means that less than one-half of the total number of cars licensed during 1916 thus far have been registered. Until this week the weather throughout Wisconsin has been highly unfavorable, and even at this time the northern part of the State still is engaged in the task of digging itself out of huge snowdrifts resulting from a late blizzard. Applications from the northern section are coming in very slowly, and the number of licenses already issued are mainly to owners in the larger cities in the southern section. The total registry in 1916 was 115,650, and it is estimated that more than 152,000 cars will be licensed during 1917. At this time as many dealers have taken out licenses as a year ago, namely, 1400.

Case Salesmen Gather

ST. LOUIS, March 26—Salesmen of the J. I. Case T. M. Co. in Illinois, Missouri and Arkansas have concluded a 4 days' meeting here. W. S. Roberts, manager of the St. Louis branch, presided. He was assisted by assistant manager George T. Coonley. Factory sales manager J. S. Witmer and his assistant, O. J. Thomas, took part in the program. The sessions were held at the Marquette Hotel.

Bidwell Pays Fine With Nice New Bills

BUFFALO, N. Y., March 24—Alfred C. Bidwell, president of the International Automobile League and the International Automobile League Tire Co., pleaded guilty to a consolidated indictment charging him with conspiracy to use the mails to defraud and actual use of the mails to defraud, and was fined $2,000. The league and the tire company were each fined $1,000. Bidwell paid his fine in crisp new bills, one of $1,000 and two others each of $500. Judge Thomas, of the United States District Court, informed Bidwell that he was being treated leniently because he had pleaded guilty and saved the government the cost of the trial.

Law Requires Used Car Record

NASHVILLE, TENN., March 23—Upon recommendation of Chief of Police Alex. Barthell, the Board of Commissioners has passed an ordinance requiring motor vehicle and accessory dealers to keep detailed records of all purchases of used cars and parts and report them daily to the police department, as junk dealers are required to do. There has been no opposition on the part of the dealers. The chief states that thefts of parts have become so common lately that it was necessary that steps be taken to aid the department in locating them. Wheels, steel castings and even an engine have been stolen here.

LaRue Dealer Holds Show

LARUE, OHIO, March 23—W. E. Thew promoted the first automobile show ever held in LaRue last week. It was held in his garage and several makes of cars were exhibited. The results were satisfactory and the show will be repeated next year.

Elgin to Triple Space

CHICAGO, March 26—The Elgin Motor Car Corp. will erect additional buildings, which will triple floor space and provide for an annual output of 20,000 to 25,000 cars.

Would Put 3-Ball Sign Over Used Car Dealers

Massachusetts Still Has an Idea That Used Car Men Come in the Pawnbroker Class

BOSTON, MASS., March 24—The committee on roads and bridges that has been considering the measure to make used-car dealers class themselves as pawnbrokers has not yet reported upon the measure presented to them by the insurance interests. At the hearing last week Mr. Apsey, for the insurance companies, introduced his proposed plan that divided all the dealers into two classes, one as A and the other as B. Class B is the used-car men, and it called for them to report every day before noon all the motor cars they had bought, with a full description, the price paid, etc. But the wicked feature of it was that no car could be sold or exchanged for a period of 15 days after it was purchased. The first part of the original bill called for every buyer of a car, new or old, registering it with the chief of police in his city or town within 24 hours or be subject to a fine of $50 and 6 months' imprisonment or both.

Would Examine All Drivers

NASHVILLE, TENN., March 23.—Every driver of a motor-vehicle in Tennessee will be required to stand an examination, if a bill now pending in the legislature is passed. It has already passed the Senate, where it was introduced, and is now before the lower house. The measure provides that every one who wishes to drive a motor vehicle must send an application to the Secretary of State accompanied by his photograph. Within 30 days an examination will be given, the examiners being appointed by the Secretary of State. If successful, he will receive a license, giving him a number and bearing a brief description of the holder. In addition he is to receive a badge with his number, which he will be required to show to any traffic official.

Look for Tire Rise

NEW YORK, March 22—Another advance in automobile tire prices is imminent, in fact, it may come within a month, according to Colonel S. P. Colt, president of the United States Rubber Co. This company is now manufacturing 12,000 tires a day, and with the completion of its new additions to the Morgan & Wright plant in Detroit, the capacity will be brought up to 14,000 tires a day. An advance in tire prices is only in line with the steadily advancing cost of crude rubber and fabric.

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Springtime Is Movetime in Boston Motor Colony

Salesmen Make New Connections and Some Ascend Sales Ladder —Howell Takes the Liberty

BOSTON, March 24—Show season always brings about changes in the motor world and several moves have been made here that have placed men with new companies. Louis Sackett, for some years on the sales force of the Cadillac, and at one time manager of the agency, has resigned to take charge of the sales force of the Premier. Frank S. Corlew, who has been a dealer and salesman of cars and accessories, has gone with him.

I. A. Howell took over the Liberty agency recently, and "Ted" Earle went along with him as salesman. They were both on the sales force of the J. H. MacAlman Co. selling Stearns-Knight cars. Russell Gately, who had been working for the city, has joined the Hupmobile sales force, and Eugene Buckley, Jr., has gone from the Hupp to the Stutz agency. Frank Chandler has shifted from the Stutz to the Stearns-Knight to fill the gap left by Howell and Earle.

C. R. Hathaway has been promoted to the managership of the Jackson, Mich., branch of the Jackson Motor Car Co., and F. W. Cousins has taken his place in charge of the executive offices at Boston. W. E. Lalime, an old Ford man, has taken over the Ford branch in Copley Square, Boston. Frederick G. Chandler, formerly a Cadillac salesman, has taken the Peerless agency for Worcester, and Arnold G. Vogel has taken on the Maxwell at Manchester, N. H.

Holmes Gets Canton Plant

CANTON, OHIO, March 26—The Holmes Automobile Co. has bought the east plant of the Republic Stamping & Enameling Co., including the buildings and a tract of 23 acres, and involves an expenditure of more than $300,000. Experimental work on the Holmes air-cooled car will be started immediately. It is expected that production will be started next December. The car will sell for about $2,000 and there will be 4- and 7-pass. bodies on a 125-in. wheelbase. It is planned to build 4000 cars the first year and to show the first models at the next New York show.

New Republic Truck Tire

YOUNGSTOWN, OHIO, March 26—The Republic Rubber Co. is marketing a new type of channel base pressed-on truck tire. It is designed to carry greater loads than previous types, and is constructed of Prodium process rubber. The tires are made in all sizes and Republic branches are being equipped with presses to facilitate prompt service. The company will immediately extend its plant to treble production. Theodore F. MacManus, who has been connected with the Goodyear Tire & Rubber Co., will be advertising and business counsel.

Schebler Reincorporation Means No Change in Policy

INDIANAPOLIS, March 24—Officers of the Wheeler-Schebler Carburetor Co. of Indianapolis and Detroit announced to-day that the recent action of the company in incorporating in both Indiana and Michigan, with a capitalization of $1,000,000 in each State, means no change in the policy of the company. The company had operated as a partnership until the incorporation papers were filed, Frank H. Wheeler, of this city, having been the sole owner of the concern since he bought out the Schebler interests about three years ago. The incorporators of the company are: Frank H. Wheeler, president; Douglas Wheeler, his son, vice-president, and Seymour Avery, of this city, secretary-treasurer and general manager. The last two officers recently acquired stock in the corporation, having been connected with the company for several years. Mr. Avery said no change in the company's policy is contemplated.

Motor Securities

	Bid	Asked
*Ajax Rubber Co.	68	69
*J. I. Case T. M. Co.	80	88
Chalmers Motor Co. com.	24	30
Chalmers Motor Co. pfd.	..	..
*Chandler Motor Car Co.	101	104
Chevrolet Motor Co.	127	132
Fisher Body Corp. com.	35	40
Fisher Body Corp. pfd.	94	96
Fisk Rubber Co. com.	65	75
Fisk Rubber Co. 1st pfd.	101	105
Fisk Rubber Co. 2d pfd.	70	100
Firestone Tire & Rub. Co. com.	141	143
Firestone Tire & Rub. Co. pfd.	107	109
*General Motors Co. com.	119½	120
*General Motors Co. pfd.	90½	91
*B. F. Goodrich Co. com.	55½	56⅛
*B. F. Goodrich Co. pfd.	108¾	112
Goodyear Tire & Rub. Co. com.	246	151
Goodyear Tire & Rub. Co. pfd.	106	107¾
Grant Motor Car Corp.	5	7½
Hupp Motor Car Corp. com.	4	5
Hupp Motor Car Corp. pfd.	85	90
International Motor Co. com.	..	17
International Motor Co. 1st pfd.	..	70
International Motor Co. 2d pfd.	..	30
*Kelly-Springfield Tire Co. com.	63⅝	63¾
*Kelly-Springfield T. Co. 1st pfd.	93	94
*Lee Rubber & Tire Corp.	23	23½
*Maxwell Motor Co., Inc., com.	52¾	53½
*Maxwell Motor Co., Inc., 1st pfd.	68	71
*Maxwell Motor Co., Inc., 2d pfd.	33	34½
Miller Rubber Co. com.	235	245
Miller Rubber Co. pfd.	104½	106¼
Packard Motor Car Co. com.	..	161
Packard Motor Car Co. pfd.	..	102
Paige-Detroit Motor Car Co.	37	38
Peerless Truck & Motor Corp.	16	18
Portage Rubber Co. com.	180	185
Portage Rubber Co. pfd.	..	..
Regal Motor Car Co. pfd.	..	25½
†Reo Motor Car Co.	34½	35½
*Saxon Motor Car Corp.	57⅝	57¾
Springfield Body Corp. com.	70	80
Springfield Body Corp. pfd.	110	117
Standard Motor Construction Co	9½	10
*Stewart-Warner Speed. Corp.	83	84
*Studebaker Corp. com.	103⅞	104½
*Studebaker Corp. pfd.	105	107
Swinehart Tire & Rubber Co.	74	80
United Motors Corp.	39½	39¾
*U. S. Rubber Co. com.	59½	59¾
*U. S. Rubber Co. pfd.	108⅛	108¼
*White Motor Co.	49½	49¾
*Willys-Overland Co. com.	33½	34
*Willys-Overland Co. pfd.	97	99

*At close March 24, 1917. Listed New York Stock Exchange.
†Par value $10.

Peerless 1916 Earnings $1,358,000; Equals 13½%

Net Sales of Subsidiaries for Year Are $13,500,000—Increase of $1,200,000 Over 1915 Sales

NEW YORK, March 23—The Peerless Truck & Motor Corp. for 1916 showed net profits of $1,358,810, after allowing for the full years' interest on the $5,000,000 notes outstanding, and after charging off $550,637 as a net loss on munitions and special foreign contracts of the General Vehicle Co. Net profits in 1915 were $2,555,773. The balance at the end of the year, Dec. 31, was $1,358,810, after deducting $2,453 for preferred dividends on the stock of the Peerless Motor Car Co. outstanding is equivalent to 13.56 per cent on the $10,000,000 capital stock, or $6.78 per share, par value $50. Net sales of the subsidiary companies of the truck company for the calendar year 1916, excluding munitions and special foreign contracts of the General Vehicle Co., were $13,525,023, an increase of $1,234,057 over the sales of the preceding year.

The balance sheet shows cash and marketable securities of $2,077,152 on hand as of Dec. 31 last.

New Plant for Wilson Body

DETROIT, March 26—The C. R. Wilson Body Co. has purchased forty-three acres in Bay City, and will erect buildings costing from $250,000 to $300,000. Four hundred additional men will be employed and the added floor space will be 150,000 to 160,000 feet. Work will start on the buildings immediately, and they will be ready in 60 days. This will give the company a capacity of 800 to 900 bodies a day.

Colt is U. S. Rubber President

NEW YORK, March 22—S. P. Colt was to-day elected president of the U. S. Rubber Co. at the directors' meeting. The other officers elected are: J. B. Ford and Lester Leland, vice-presidents; R. B. Price, vice-president in charge of development departments; H. E. Sawyer, vice-president in charge of foot-wear department; E. S. Williams, vice-president in charge of mechanical forces; Samuel Norris, secretary; J. D. Carberry, assistant secretary; W. G. Parsons, treasurer, and A. J. Hathorne, assistant treasurer.

Distributing Statistical Table

John Burnham & Co., 115 Broadway, New York, which furnishes the Motor World stock quotations, has prepared for gratuitous distribution a table regarding motor corporations showing capital, par value of stocks, dividends, factory production and other figures. The table gives a lot of information which should be valuable for reference purposes.

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Fool Laws May Kill the Use of Trucks on Coast

Would Tax Buses $1250 and Would Make Trucks Drive 1400 Miles to Be Officially Inspected

LOS ANGELES, March 24—Motor truck dealers here admit their business is practically stagnated as the result of pending legislation. The charge is made that three big railroad systems and their subsidiaries are actuating the opposition to the truck that is apparent from the three distinct bills now before the legislature. The situation has become so acute that dealers and manufacturers of trucks are appealing to owners and users to write and telegraph their representatives of the enormous damage that they will suffer if the proposed measures become statutes.

It is provided in one bill that each passenger-carrying bus must pay a license to operate of $25 per seat. Many of these buses with a capacity of twenty-four passengers are in service between Los Angeles and suburban towns. That would mean a tax of $600 for each vehicle. In addition they must pay 4½ per cent of the earnings to the state railway commission, state and county tax on equipment, the state operator's license and a weight tax or six taxes in all which approximately would amount to $1,250 a year, which is declared confiscatory.

Truck capacity is to be limited to 5 tons. There are many larger than this now in use in the state and instead of considering the purchase of additional equipment, large operators are now thinking about how they can dispose of what they have. On a five-ton truck, the bill would levy a tax of $350. In addition there would be required a state license, weight tax and, in case the truck is engaged in general hauling, a city tax and the usual state and county property tax. This would amount to between $650 and $700 in all. Small towns require local license from non-resident truck owners operating within their borders, so this must be taken into consideration also.

It is estimated that the oil companies operating in California are using 300 trucks equipped with tank bodies. When loaded, the truck, tank and contents weigh approximately fourteen tons. Each outfit represents an expenditure of approximately $4,000. None of these trucks can be used as now equipped if the bill becomes a law.

Another provision is that the speed of trucks "shall be compatible with public safety and in no case exceed 9 miles an hour." Four miles an hour is the limit in case any tire is defective. There is no designation of what constitutes a "defective" tire. It is further stipulated that before an operator's license shall be issued the truck shall be driven to the office of the state motor vehicle department where tires and body are to be measured and the truck weighed in order to determine the weight of load permitted. There are only three offices of the department in the state, here, San Francisco and Sacramento. From Needles to Los Angeles is more than 500 miles and from Crescent City to Sacramento, it is almost 700 miles. Fourteen hundred miles to have the tires on a truck measured is said by opponents of the bill to be asking too much.

Charles E. Fay Takes Maxwell in Boston

BOSTON, March 26—Charles E. Fay, who a few weeks ago resigned as manager of the Boston branch of the Ford Motor Co., after having been with the company for 15 years, has bought out the Maxwell retail agency. He obtains all eastern Massachusetts, from Worcester to the coast, and Rhode Island. This will not interfere with the wholesale Maxwell branch, under Hoover-Holton. E. F. Evans will be in charge of the executive department.

Thompson Takes Doble Agency

MINNEAPOLIS, March 23—E. C. Thompson has taken the agency for the Doble steam cars for Minnesota and the Dakotas.

Price Changes

Overland Prices Increase

TOLEDO, March 24—The Willys-Overland Co. will increase its prices, to take effect April 1, as follows: The light 4 touring car, now $665, will be $695; the roadster, now $650, will be $680; the Country Club model, now $750, will be $795; the Willys-Knight 4, now $1,285, will be $1,395; the light panel delivery, now $700, will be $730; the light express delivery, now $675, will be $705. Models 85, in the four-cylinder and six-cylinder, will be increased in price on May 1. These prices will be announced later.

Briscoe Prices Up $60

NEW YORK, March 23—The prices of the Briscoe fours and the eight have been raised $60. The new prices are as follows: Four-24, $685; 4-38, $845, and the 8-38, $1,045.

Nelson Makes Touring Model

DETROIT, March 24—The Nelson car, which is made by E. A. Nelson, mechanical engineer, Detroit, is now made in touring form as well as sedan. The price of the car is $1,700.

Used Car Price Record

(*See pages* 8 *and* 9)

California Dealers and State Begin Co-operation

Dealers Now Agree to Fill Out Sales Reports and License Plan Is Working More Smoothly

LOS ANGELES, March 24—Strict regulation and enforcement of the motor vehicle act are to prevail in this state this year. An attempt was made last year, the first the law was in effect, to obtain co-operation between the motor vehicle department and the dealers but it failed because of the dealers' attitude. They held they could not be required to supply the state with evidence about the sale and transfer of cars and the blank reports sent to them went into the waste paper basket. However, when the time arrived for the dealers to obtain new licenses for 1917 those who had been remiss in submitting reports in 1916 found their licenses were withheld and it took a legal proceeding to adjust affairs. Dealers are now complying with the requirement in good form.

The state furnishes the dealers with books of blank reports printed in triplicate. One copy must be mailed to the office of the motor vehicle department, one is given the purchaser only when he has paid the dealer the license fee and the third remains in the book to be returned when the supply of forms is exhausted. The report must cover all sales made, whether of new or used cars, regardless of whether or not the license fee has been paid. The dealer is not required to take care of the registration of the car. It is merely a matter of courtesy on his part toward the customer.

Books without triplicate copy are supplied dealers in Los Angeles, Sacramento and San Francisco and Alameda, Marin and San Mateo counties, owing to the fact branch offices in Los Angeles and San Francisco make immediate delivery of license number plates possible. "License applied for" cards are no longer recognized by the police.

The reports cannot be used in place of regular license applications and the application blanks must be made out and sent with the fee in addition to the report of sales. Dealers doing a large wholesale business in selling cars to subdealers may make reports in groups in letter form.

Cedar Rapids Show Successful

CEDAR RAPIDS, IOWA, March 24—The motor show, which closed to-day, was the best Cedar Rapids ever held. Thirty-five exhibitors showed sixty-six cars. The weather was fine and the attendance large. What is considered a big move toward better organization was a banquet tendered to the Waterloo Automobile Dealers' Association at the Montrose Hotel by the Cedar Rapids Automobile Association.

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Milwaukee Dealers Put on Show in Town of 600

Loan Ruddle and Scenery to Hilbert, in the Heart of the Prosperous Barley District

MILWAUKEE, Wis., March 26—The Milwaukee Automobile Dealers, Inc., which has been promoting sectional shows in a number of large centers of population throughout Wisconsin during the late winter season, following its annual show in January, will close its sectional show season by holding a complete exhibition in a village of 600 population—Hilbert, Calumet County, Wis.—on March 29, 30, 31 and April 1. It will be the first show ever held in Calumet County, which probably is the premier barley-raising district in Wisconsin, the famous barley-raising State. Chilton is the county seat, but it lacks good railroad facilities, so the little village of Hilbert, a junction point of the Milwaukee and "Soo" railroads, was selected. About 6000 sq. ft. of floor space are available, and the decorations will be a miniature edition of those used in the big Auditorium at Milwaukee in January. Fifty models will be exhibited. Bart J. Ruddle, manager of the M. A. D., is assisting the dealers of Calumet County in directing the show, which probably will go down in history as the biggest motor show ever held in the world, size of town considered.

Pittsfield Dealers Organize

PITTSFIELD, MASS., March 26—Dealers have formed the Automobile Merchants Association and elected H. D. Sisson president. Other officers are: Vice-president, A. H. Brouthers; secretary and treasurer, James Downes; executive committee, the officers and A. J. Brewer and A. V. Phillips. The association starts with a membership of 20, and meetings will be held every two weeks. It is proposed to form a corporation to handle used cars.

Form Tractor Company

LAPEER, MICH., March 24—The Lapeer Tractor Co. has been organized to manufacture tractors. Officers are: W. H. Tucker, president; Thomas White, vice-president; E. E. Mix, secretary, and Ray Carpenter, treasurer.

Garagemen Join Civic Body

PHOENIX, ARIZ., March 24—In an effort to solve the problems of credits and protection of garagemen, the Phoenix Garage Men's Protective Association has voted to affiliate with the Merchants' and Manufacturers' Association of Phoenix, and ask the co-operation of the larger organization in working out the peculiar credit problems confronting dealers, accessory houses and garagemen. The following officers were elected at the regular March meeting of the association: President, L. W. Henderson; sec'y-treas., Hugh Miller. The association at present numbers over sixty members.

Used-Car Exchange for York

YORK, PA., March 24—The York County Automobile Dealers Association has established a clearing house for the sale of used cars. A salesroom has been opened. The proprietors are Frank B. Snyder and H. M. Heiges. Used cars are no longer taken in trade by the dealer or purchased from the owner. These cars are handled through the exchange. The dealers' association includes 15 dealers.

Thropp and Delion Separate

NEW YORK, March 24—There is no connection between the John E. Thropp Sons Co., manufacturers of tire machinery, and the Delion Tire & Rubber Co., of New York, with a factory in Trenton, N. J. The writer of a recent Delion advertisement stated that the Delion factory is operated and controlled by the Thropp company, whereas the Thropp company is not in any way connected with the Delion company. Delion, however, uses the Thropp system in manufacturing its tires.

Plans Huge Truck Production

DETROIT, March 24—It is reported in authoritative circles that E. F. Ross, of the Ross Engineering Co., will shortly enter the business of manufacturer of trucks, and at present has asked for bids on parts and materials for 50,000 light delivery cars.

Eisemann Opens Chicago Office

CHICAGO, March 26—The Eisemann Magneto Co. has opened a Chicago office at 910 South Michigan Avenue.

Another Ford Tractor Maker

FOND DU LAC, WIS., March 26—The Farm Tractor Co. has been organized at Fond du Lac, Wis., with a capital stock of $20,000, to manufacture a truck and tractor using the Ford chassis. The promoters of the new concern are associated with the Giddings & Lewis Mfg. Co., Fond du Lac, a large manufacturer of lathes and other machine tools and machinery. The production of the new machine will be carried on in the Giddings & Lewis plant, for the present at least.

Used Car Price Record

(*See pages* 8 *and* 9)

Weekly Meetings Feature of St. Paul Association

Older of the Twin Cities Begins Dealer Organization Work with Enthusiasm

ST. PAUL, March 24—Permanent organization was effected last week of the St. Paul Automobile Trade Association. A constitution and by-laws were adopted and the plan is to get in every dealer in the city to weekly meetings at 6.15 p.m. Wednesdays. Officers are: President, Dr. A. A. VanDyke; vice-president, A. H. Clark; treasurer, George Foster; directors, M. J. Osborn, L. C. Roller, Leroy Eschner, H. A. Brandtjen, E. R. Boutell.

Austin To Be Revived

CINCINNATI, March 24—Two Cincinnatians are interested in a new automobile concern incorporated this week in Columbus under the style Austin Automobile Co. of Ohio. They are: W. J. Murray and Victor Murray, of the Murray Auto Parts Co., Cincinnati. Others said to be interested are C. M. Nicholas, of Columbus, and Walter Austin, of Grand Rapids, Mich. The new company is to take over the Austin company at Grand Rapids, and will establish a new factory in Cleveland. Arrangements for the erection of a new factory are now being made. The capitalization of the new concern will be $2,000,000, and the cars will sell at $6,000. The Auto Parts Co., Cincinnati, will be merged into the Cleveland concern.

Watson Heads Lee

CONSHOHOCKEN, PA., March 22—At the organization meeting of the directors of the Lee Rubber & Tire Corp. to-day John J. Watson, Jr., who has been vice-president and treasurer of the company, was elected president, and A. A. Garthwaite, former president, was elected vice-president and treasurer. Henry Hopkins, Jr., was re-elected secretary. The retiring directors were re-elected. The output for the year is estimated at between 350,000 and 400,000 tires, as compared with 225,000 tires in 1916.

Champion Established in Canada

WINDSOR, ONT., March 24—The Champion Spark Plug Co. of Canada has secured a Dominion charter. The capital stock is $100,000, divided into 1000 shares of $100 each. The chief place of business will be in Windsor. The incorporators are: Robert Allen Stranahan, Frank D. Stranahan, Fordyce Barker Caswell, of Toledo; O. E. Fleming, K. C. and A. H. Foster, of Windsor.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

James W. Bartlett, who for some time past has been in charge of the wholesale department for the Maxwell Motor Sales Co., Baltimore, is now sales manager of the Motor Sales & Mfg. Co., Baltimore, distributer for the Scripps-Booth, Stearns-Knight and National.

J. Allison Muir, recently sales manager for the Monumental Motor Car Co., Kissel distributer, has become associated with Walter Scott, Marmon distributer, Baltimore.

Robert D. Bates, Jr., has become sales manager of the Pitcher-Harrison Co., Baltimore, Kline distributers. John R. Roy joins the sales force of the same company.

Miles Bingham, assistant sales manager of the Studebaker branch in Philadelphia, has become manager of the Baltimore branch of W. P. Barnhart & Co., distributer for Pullman cars and Atterbury trucks.

H. P. McQuiston has been appointed in charge of the newly created used car division of the sales department of the Chalmers Motor Car Co., Detroit. He will give selling and advertising assistance to Chalmers dealers on used cars.

R. C. Buckley, St. Louis, for several years with the Bittle-Leftwich Tire Service Co., Lee tire distributer, has gone to Baltimore to join the Campbell-Niedringhaus Tire Service Co., also Lee distributer.

M. E. Maloney has resigned from the purchasing department of the Hupp Motor Car Corp., Detroit. He will be associated with F. E. Bowers, manufacturers' representative.

James Guthrie, whose association with the Dey Electric was recently announced, will continue his consulting practice in the Erie Bldg., Cleveland. His connection with the Dey Electric is that he will take care of the purely automobile features, Dr. Steinmetz continuing to look after the electrical portions.

J. J. Hartley has been appointed manager of the Dorris Motor Car Co., St. Louis. For the past 4 years he has been with the Wagner Electric Co., St. Louis.

Warner W. Bateman has been appointed manager of the Maxwell Motor Sales Corp. branch in Cleveland. He was formerly with the Studebaker branch, San Diego, Cal.

A. H. Dittmer, formerly with the Chalmers Motor Car Co., has been appointed purchasing agent for the Covert Gear Co., Lockport, N. Y. He succeeds E. J. Fritton, who recently resigned as secretary and treasurer of the company.

J. W. Crawford, who for the past 4 years has been in the engineering department of Chalmers Motor Car Co., has been promoted to designing engineer.

W. E. Darden has been made division manager of the Prest-O-Lite Co. with headquarters in Seattle. He will have charge of Oregon, Washington, Idaho, Montana and Alaska. He is succeeded as branch manager by J. L. Merritt.

Robert F. Brown has become connected with the Guaranty Securities Corp., New York, and will travel in the New England territory.

L. G. Peed has been appointed sales manager for the Willys-Overland Co., New York.

Russell T. Gray, advertising manager of the Haynes Automobile Co., Kokomo, has resigned to become connected with the Shuman Advertising Co., Chicago.

H. L. Dickey has been made general sales manager of the Moto-Meter Co., Inc., Long Island City, N. Y. For the past 3 years he has been general manager for the Findeisen & Kropf Mfg. Co., New York.

D. C. Lee has been made manager of a retail branch opened by the Studebaker Corp at 149th Street, New York. **Walter Cooney** will be service superintendent and in charge of used cars.

A. Colby has been made manager of the Dumor Auto Specialty Co., Cincinnati. This was inadvertently stated to be Philadelphia last week.

Maurice Needham has resigned as general manager and treasurer of the Bailey Non-Stall Differential Corp., Chicago, to become associated with the Barrett-Cravens Co., Chicago.

James J. Harrington, assistant sales manager, has been appointed manager of the Ford branch and assembly plant at Cambridge, Mass. **K. D. Sheldon,** assistant manager of the Ford branch at Toledo, has been appointed assistant manager of the Cambridge plant.

C. F. Noyes, formerly of Los Angeles, has been appointed vice-president of Chansior & Lyon, and will be active in the management of the Seattle branch of the firm.

O. B. Henderson has been appointed manager in Los Angeles of the Willys-Overland Co.

Gordon Dawson, formerly Regal district manager for Michigan, will in the future be head of the Regal Motor Sales Co. **E. J. Curren,** who has been in the Middle West territory, will succeed Dawson.

Frank Shaw has been appointed traffic manager of the Harroun Motors Corp., Detroit. He was formerly the foreign traffic manager and special sales representative of the Studebaker Corp. of America.

Herbert T. Hare has resigned as advertising manager of the Maxwell Motor Sales Corp. branch in Philadelphia and has joined the advertising department of the Packard Motor Car Co. of Philadelphia. Hare is a former newspaperman.

R. L. Kern has been promoted to traffic manager of the United States Radiator Corp., Detroit. He succeeds J. J. O'Donnell.

D. L. Porter, secretary and manager of the Auto Wheel Co., Lansing, has been elected a director, filling the vacancy caused by the death of Lawrence Price.

E. M. Naylor, for several years district manager for the Kelly-Springfield Motor Truck Co., Dallas, has resigned to become truck expert for the Wichita Falls Motor Co.

John H. Miller, formerly of Kansas City, has joined the F. L. Shaw Co., Studebaker distributer, Dallas, and will have charge of the tire department.

W. C. Lacey has gone to El Paso, where he becomes district manager of the Studebaker Corp.

Dan F. White has been appointed Southern district manager for the Firestone Tire & Rubber Co., with headquarters at Dallas. He succeeds N. B. Burwell, who has resigned to enter private business.

George F. Davis, Tacoma, has been elected secretary of the Universal Motor Co., Ford dealers.

Edward E. Saunier has been appointed advertising manager of the Eastern Motors, Inc., New Britain, Conn. He has been connected with the advertising department of Colgate & Co. and the Columbia Graphophone Co., and was advertising manager of the American Hosiery Co.

Louis Logie, sales supervisor for the Provinces for the Maxwell Motor Sales Corp., Detroit, has been appointed Canadian Maxwell supervisor in charge of both sales and service for the entire Dominion.

Stewart Electric Clock Sold to Waverly Novelty

Temporarily Waverly Will Lease Quarters in Beloit—Later Will Have Own Plant

BELOIT, WIS., March 26—The Waverly Novelty Co., with headquarters in Pittsburgh, has purchased the electric clock business of the Stewart-Warner Speedometer Co., and for the present the manufacture of these devices will be carried on in leased quarters in the Warner works at Beloit, Wis., where the electric clock was developed under the former Warner Instrument Co. auspices previous to its consolidation with the Stewart industries.

E. M. Thompson, inventor of the clock, has resigned his position with the Beloit or Warner works after 11 years of association to take charge of the Waverly company's new division. For the present, while old contracts of the Stewart-Warner company are being filled, the Waverly company will be located in the Warner works, but as soon as possible it will arrange to establish a factory of its own. The Stewart-Warner company has not pushed the electric clock business in recent months and a short time ago decided to discontinue it altogether, but accepted the offer of the Waverly company to take it over.

F. C. Wood, former manager of the Wood-Oakland Co., Cleveland, has been appointed vice president and sales manager of the Champion Motors Co. of Fulton, Ill., and Cleveland, Ohio. Wood retains his financial interest in the Woods-Oakland Co., but will devote his time and attention to the Champion company.

C. H. Kloo, Jr., has been appointed to take charge of the sales promotion department of the United States Motor Truck Co., Cleveland, and to act as assistant to Forrest J. Alvin, general sales manager. He was formerly associated with the National Cash Register Co.

R. Bissell, for the past three years research engineer for Dodge Bros., Detroit, has joined the automobile spring department of the Detroit Steel Products Co., in a similar capacity.

M. S. Fitzroy, St. Louis, has gone to Atlanta to take charge of the Inland Machine Works piston ring branch there.

N. Loewenthal, Indianapolis, has joined the force of the Inland Machine Works, St. Louis, and has been assigned to the Southwest, with headquarters at Dallas.

H. A. Neill has been appointed manager of the General Motor Truck Co., 203 N. Twenty-second Street, Philadelphia, succeeding O. E. Stull who was promoted to post at the Pontiac factory.

Jack Harding has severed his connection with the Prest-O-Lite Co., Indianapolis, and returns to the Russel M. Seeds Co., advertising agents, as one of its two vice-presidents.

G. B. Spence has severed his connection with the Standard Detroit Tractor Co., Detroit, to become sales manager of the Uni-Tractor Co., Chicago.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-44	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	122	32x4	SS	1195	†1250	1195	1495	1820	....	....
ALLEN																	
Classic	4-3½x5	22.5	Wsths	Stmbg	Wsths	C	3	112	32x3½	SS	†895	895	....	1175	1195	....	1195
AMERICAN-SIX																	
A	6-3 x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1285	....	....	....	....	....
AMS-STERLING																	
17	4-3½x4½	15.6	Bosch	Stmbg	Bosch	DP	3	110	30x3½	SS	...	....	....	. ..	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25.4	Wsths	Own	Wsths	DP	3	120	33x4	SS	1275	1250	*1250	....	....	....	....
APPERSON																	
6-17	6-3½x5	29.4	Remy	Rafld	Bijur	DP	3	130	34x4	SS	1750	1690	1750	....	....	....	....
8-17	8-3½x5	31.2	Remy	Johnson	Bijur	DP	3	130	35x4½	SS	2000	....	2000	....	....	....	....
AUBURN																	
6-39	6-3½x5	23.4	Remy	Rafld	Remy	DP	3	120	34x4	SS	1145	1145	†1145	....	....	....	1320
6-44	6-3½x5½	29.4	Delco	Rafld	Delco	DP	3	131	35x4½	SS	....	†1535	1535	....	....	....	1785
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142½	34x4½	SS QD	3750	3750	4000	4550	4950	5250	....
BIDDLE																	
D	4-3½x5½	22.5	Dixie	Zenith	G & D	DP	4	122	32x4	QD	2200	2350	†2275	....	....	3800	3900
BOUR-DAVIS																	
17	6-3½x4½	25.3	Remy	Stmbg	G & D	DP	3	118	32x4	QD	....	1250	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U. S. L.	C	3	125	34x4½	SS	†6500	....	....	....	7500	7700	....
BRISCOE																	
B4-24	4-3⅛x5½	16.3	Conn	Mayer	Splitdorf	C	3	105	30x3½	QD	685	685	....	....	....	....	810
8-38	8-3 x3½	28.8	Remy	Zenith	Apleo	C	3	114	32x3½	QD	‡985	985	....	....	....	....	....
4-38	4-3⅞x5½	18 9	Remy	Mayer	Apleo	C	3	114	32x3½	QD	†785	785	....	....	....	....	....
BUICK																	
D 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	660	675	....	....	....	....	....
6-44-47	6-3½x4½	25 3	Deloo	Marvel	Delco	C	3	115	34x4	SS	1040	1070	....	‡1440	1835	....	....
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DD	3	124	34x4½	SS	....	....	1385	....	....	....	....
CADILLAC																	
55	8-3½x5½	31.2	Delco	Own	Delco	D	3	{132 / 125	37x5 / 36x4½	SS	†2240	....	2240	2960	....	3760	2835
CASE																	
T17	4-3½x6	21.0	Conn	Rafld	A-Lite	C	3	120	34x4	QD	†1190	. ..	1190	....	....	....	....
CHALMERS																	
6-30	6-3½x4½	25.4	Remy	Stmbg	Wsths	DP	3	{115 / 122	32x4 / 34x4	SS	1250	1250	1350	1625	1850	2550	....
CHANDLER																	
17	6-3½x5	27.3	Bosch	Rafld	G & D	D	3	123	34x4	SS	†1395	....	1395	1995	1995	2695	1995
CHEVROLET																	
4-90	4-3½x4	21 7	Conn	Zenith	A-Lite	C	3	102	30x3½	C	535	550	....	....	....	....	625
F5-F2	4-3½x4	21.7	Conn	Zenith	A-Lite	C	3	108	32x3½	SS	800	800	....	....	....	....	....
D	8-3½x4	36.45	Conn	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	†1385	....	....	....	....
COLE																	
8-60	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	†1795	....	1795	2295	....	....	....
CROW-ELKHART																	
CE-33-35	4-3½x5	19.6	Conn	Carter	Dyneto	D	3	114	32x3½ 31x4	SS	†845	795	....	....	....	....	935
DANIELS																	
8	8-3½x5	33 8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	†2800	2800	2800	3800	4000	4000	....
DAVIS																	
H & I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	1295	1295	1295	1695	1795	....	1995
J	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	124	34x4½	....	....	1595	1595	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25 3	Conn	Ball	A-Lite	D	3	119	33x4	SS	‡1250	1250	....	1525	....	....	1550
DISPATCH	4-3½x5	22.5	Bosch	Rafld	U. S. L.	D	4	120	36x3½	QD	1135	....	1210	1400	....	....	....
DIXIE FLYER																	
L3.	4-3½x5	16.9	Conn	Carter	Dyneto	C	3	112	32x3½	SS	....	845	....	....	1275	....	....
DOBLE 2-cyl, 5x4 double-acting steam engine. Boiler pressure 600-lbs.													2500				
DODGE BROTHERS																	
	4-3½x4½	24	Delco	Stewart	N.E.	D	3	114	32x3½	S	785	785	....	950	1185	....	950
DORRIS																	
I-B-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	3	108	36x4½	SS	....	....	2475	3250	3350	3675	....
DORT																	
9	4-3½x5	16.9	Conn	Carter	Wsths	C	3	105	30x3½	QDC	†695	695	....	....	1065	....	815
LOZIER																	
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	.	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisnn	Rafld	G & D	D	3	132	36x4½	SS	.	....	2775	....	....	....	....
LUVERNE																	
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD		132	35x4½	SS	....	....	1500	....	....	....	....
MADISON																	
4	.....	...	....	....	....	...	.	120	34x4		.....	....	....	....	....	....	....
	6-3½x5	23.4	Remy	Rafld	Remy	DD	3	115	34x4	SS	†1285	1285	1735	....	....	....	....
	.....	...	....	....	....	...	.	124	...	..	....	....	....	....	....	....	....
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	36x3½	SS	695	....	....	....	....	....	....
MAJESTIC																	
M	8-3 x5	28.8	A.Kent	....	R & M	DP	3	125	32x4	....	†1500	1650	1650	....	....	....	....
A	8-3½x5	33.8	A.Kent	....	R & M	DP	3	135	35x5	....	†3000	3000	3000	....	....	....	....
MARION HANDLEY																	
6-40	6-3½x5	23.4	Wsths	Stmbg	Wsths	DD	3	120	32x4	SS	††1275	....	1275	....	....	....	....
6-60	6-3½x5½	29.4	Wsths	Stmbg	Wsths	DD	3	125	35x4½	SS	†1575	....	1575	....	....	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bosch	C	3	136	34x4½	QD	††3100	3050	3100	....	4100	4550	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K-D	Simms	C	3	103	30x3½	C	620	635	....	865	985	....	....
McFARLAN																	
	6-4½x6	48.6	Bosch	Stmbg	Wsths	DP	3	136	35x5	QD	3750	3800	3500	....	....	....	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QDC	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	115	32x4	QDC	3400	Raceabout,	3250	..	....	....	. ..
METZ																	
25	4-3½x4	24	Dixie	A.W.T.	G & D	F		108	32x3½	C	600	600	....	...	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafld	Splitdorf	C	3	120	32x4	SS	1150	1150	....	....	....	....	300x
C-42	6-3½x5	29.4	Conn	Rafld	Wsths	C	3	127	34x4	SS	‡1425	1425	1460	1995	2175	2785	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1495	1495	....	....	....	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1840	....	1840	2490	2440	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Heinse	D	3	108	32x3½	SS	895	895	....	....	....	....	....
N-O	6-3½x4½	25.4	Heinse	Stmbg	Heinse	D	3	115	33x4	SS	1095	1095	....	....	1295	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	DC	565	....	....	....	965	....	....
M-4	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	DC	....	985	....	....	....	....	....
MOON																	
6-43	6-3½x4½	25.3	Delco	Rafld	Delco	DD	3	118	33x4	SS	††1295	1295	....	....	....	....	1450
6-66	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	†1690	....	1690	1690	2350	....	....
MURRAY																	
70-T	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2500	....	2500	....	....	Chassis	2000
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafld	Wsths	C	3	128	34x4½	QDR	†1850	†1850	1850	2500	2450	....	....
Twelve	12-2½x4½	39.7	Delco	Rafld	Bijur	C	3	128	34x4½	QDR	†2250	†2250	2250	2900	2850	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	....	....	....	....	2200	....	....
OAKLAND																	
34	6-2½x4½	19.0	Delco	Marvel	Delco	C	3	112	32x4	SS	‡875	875	....	....	....	....	{995 / 1020}
50	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	34x4½	SS	....	....	1585	....	....	....	....
OLDSMOBILE																	
45	8-2½x4½	26.4	Delco	Johnson	Delco	C	3	120	33x4	SS	1295	1295	1367	1775	1850	2575	1775
46	6-2½x4½	18.9	Delco	Johnson	Delco	C	3	112	32x4	SS	†1095	1095	....	....	....	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	32x4	SS	‡835	850	....	1250	1450	....	....
85B6	6-3½x4½	25.3	Conn	Titan	A-Lite	C	3	116	32x4	SS	‡970	985	....	1385	1585	....	....
88-6	6-3½x5½	29.4	Conn	Titan	A-Lite	C	3	125	35x4½	SS	....	....	1325	....	....	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	{104 / 106}	31x4	C	650	665	†750	....	....	....	....
OWEN																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	..	125	34x4½	SS	.....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7	Bosch	Zenith	O-M	OM	..	136	35x5	SS	‡3950	†3950	3950	....	....	5000	....
PACKARD																	
2-35								{135					3500	3500		4900	
2-25	12-3 x5	43.2	Bijur	Own	Bijur	DD	3	{126	35x5	QDC	{3850	3850	3850	4150	....	4450	....

*6-passenger. †4-passenger. ‡2-passenger.

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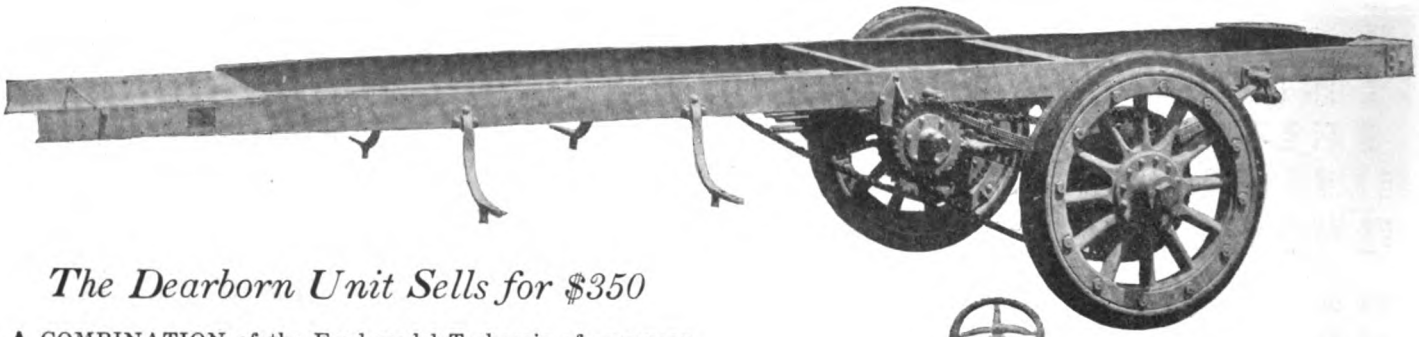
DREXEL																			
R-30-35	4-3½x5	19.6	Bosch	Stmbg	Bijur	C	3	112	33x4	....		985	985	....	....	....	....	....
	4-3½x5	19.6	Bosch	Stmbg	Bijur	D	3	118	34x4	....		....	1650	....	....	....	....	....
ELCAR																			
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS		845	845	†845	....	....	....	....
ELGIN																			
	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	116	33x4	....		†985	985	....	....	....	....	....
EMERSON																			
Four	4-3½x4	24.0	A.Kent	Waltham	....	D	3	110	30x3½	C		....	545	....	....	....	....	....
EMPIRE																			
45	4-3½x5	24.0	A-Lite	Stmbg	A-Lite	C	3	116	33x4	SS		....	960	....	....	....	....	....
60-R	6-3½x4½	25.6	Conn	Stmbg	A-Lite	C	3	120	34x4	SS		†1145	....	....	....	1625	....	....
70	6-3½x4½	25.6	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS		....	1235	....	....	....	....	....
ENGER																			
12	12-2½x3½	34.2	Wsths	Stmbg	Wsths	DP	3	116	32x4	SS		....	1295	....	....	....	....	....
4	4-3½x4½	21.7	A.Kent	....	....	C	3	106	32x3½	....		....	695	....	....	....	....	....
FIAT																			
55	4-5½x6½	42	Bosch	Zenith	Wsths	D	4	140	35x5	QDC		....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	Holly Kngstn	....	D	2	100	30x3½	C		345	360	....	505	645	....	....
FOSTORIA																			
	4-3 x4½	14.4	Remy	Zenith	....	D	3	108	30x3½	C		....	695	....	....	....	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	32x4	SS		1900	1900	....	2750	2850	3000	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS		....	1250	....	....	1450	....	....
GRANT																			
K	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	112	32x3½	....		‡875	875	....	1010	1050	....	....
HAL TWELVE																			
	12-2½x5	39.7	....	Stmbg	Wsths	DP	3	135	34x4½	SS		2600	†2600	2600	....	3500	4500	....
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS		‡1185	1150	....	....	....	....	....
R	6-3½x5	23.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS		1385	1385	....	....	....	....	....
HARROUN	4-3½x5½	16.9	Bosch	Special	Remy	C	3	106	30x3½	....		....	595	....	....	....	....	....
HAYNES																			
36	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS		....	1595	....	....	2260	....	....
37	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS		†1725	....	1725	....	2390	....	....
40	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	121	34x4½	SS		....	2095	....	....	2760	....	....
41	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS		†2225	....	2225	....	2890	....	....
HOLLIER																			
186	6-3 x4½	21.6	Remy	Stewart	A-C	C	3	116	32x3½	SS		....	985	....	....	....	....	....
178	8-3 x4½	28.8	A.Kent	Stewart	Aplco	C	3	116	34x4	SS		†1185	1185	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS		1650	....	1650	1950	2175	2925	....
HUPMOBILE																			
	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	119	34x4	SS		1285	1285	....	....	1735	....	....
N-U	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	134	35x4½	SS		....	....	1440	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS		875	925	†950	....	1325	....	....
JACKSON																			
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS		1395	1395	†1495	....	2095	....	1605
350	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	112	32x4	SS		....	1195	....	....	....	....	....
JEFFERY																			
Four	4-3½x5½	22.5	Delco	Stmbg	Bijur	DP	3	116	34x4	SS		1065	....	1095	....	1260	....	1260
Six	6-3½x5½	29.4	Dixie	Rafid	Bijur	DP	3	125	34x4	SS		1435	....	1465	....	1630	....	1630
JORDAN																			
Sixty	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DD	3	127	35x4½	SS		1795	†1895	1795	....	....	....	....
KING																			
E	8-3 x5	28.8	A.Kent	Ball	W. Lnrd	DP	3	120	34x4	SS		†1585	‡1585	1585	....	2150	....	....
KISSEL																			
642	6-3½x5½	31.54	Eismn	Stmbg	Own	DD	3	128	34x4	SS		....	1700	1900	....	2050	....	....
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	33x4	SS		†1295	1295	....	1735	2050	....	1735
Twelve	12-2½x5	39.7	Delco	Stmbg	Own	D	3	....	....	....	....	....	....	2250	....	....	....	2650
KLINE																			
638	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS		1275	1295	†1295	....	....	....	....
LEXINGTON																			
6-O-17	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD		†1185	1185	....	1350	1350	....	....
6-P	6-4½x5½	40.8	A.Kent	Stmbg	Wsths	C	3	144	36x4½	QD		....	....	2875	....	..	....	....
LIBERTY																			
6	6-3½x4½	23.4	Delco	Rafid	Delco	DP	3	115	32x4	SS		†1195	1195	....	1795	1395	....	....
LOCOMOBILE																			
R-7	6-4½x5	43.3	Bosch	Ball	Wsths	DD	4	139	37x5	QDC		†5150	*5000	5000	....	....	6200	....
M-7	6-4½x5½	48.6	Bosch	Ball	Wsths	DD	4	142	37x5	QDC		†6050	*5950	5950	....	....	7200	....
PAIGE																			
6-38	6-3½x5	23.4	Remy	Rafid	G & D	D	3	117	32x4	SS		1175	1175	....	....	1775	....	....
6-46	6-3½x5½	29.4	Remy	Rafid	G & D	D	3	127	35x4½	SS		†1695	....	1495	2100	2300	2750	....
PARTIN-PALMER																			
20	4-3½x4½	15.6	Conn	Schebler	A-C	DD	3	96	30x3½	C		545	....	....	....	....	....	....
32	4-3½x5	19.6	Conn	Carter	Disco	DD	3	110	32x3½	C		....	695	....	....	....	....	....
PATERSON																			
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	32x4	C		†1195	1165	1195	....	....	....	....
PATHFINDER																			
3-A, B, C	12-2½x5	39.7	Delco	Stmbg	Delco	DD	3	135	35x5	SS		3250	3250	3250	....	....	....	....
PEERLESS																			
56-2	8-3½x5	33.8	A.Kent	Special	A-Lite	DD	3	125	35x4½	SS		†2090	....	2090	2750	2890	3590	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	36x4½	QDC		4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	37x5	QDC		5400	5400	5000	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	38x5½	QDC		†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Tltsn	Delco	DP	3	119	32x4	SS		†1200	1200	....	....	....	....	....
PREMIER																			
6-B	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS		†1895	....	1895	....	2900	3150	....
PRINCESS																			
4-36	4-3½x4½	22.5	Splitdorf	Schebler	Disco	D	3	108	32x3½	....		775	775	‡775	....	....	....	....
PULLMAN																			
424-32	4-3½x4½	22.5	Dixie	Stmbg	Splitdorf	D	3	114	31x4	SS		860	860	†860	....	....	....	....
REGAL																			
4-32	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	DC		....	745	....	....	....	....	....
F	8-3 x4½	28.8	....	Johnson	Dyneto	C	3	115	33x4	SS		1200	....	....	....	....	....	....
REPUBLIC																			
E	6-4½x5	43.3	Delco	Rafid	Delco	C	4	133	36x4½	SS		....	†2950	2950	....	....	....	....
REO																			
M	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	120	34x4½	SS		....	†1250	1250	....	1750	....	....
R	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS		‡875	875	....	....	....	....	1025
ROAMER																			
R.A.	6-3½x5	23.4	Bosch	Stmbg	Bijur	D	3	127	34x4	SS		2150	1850	....	....	....	....	....
ROSS																			
C	8-3½x5	33.8	A.Kent.	Zenith	W.Lnrd.	DD	3	130	35x4½	SS		‡1550	....	1550	....	....	....	....
SAXON																			
B-5-R	4-2½x4	12.1	A.Kent	Rebh	Wagner	DD	3	96	30x3	DC		495	....	....	....	....	....	....
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS		....	885	....	....	....	....	....
SCRIPPS-BOOTH																			
D	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS		†1285	....	....	2575	....	....	1460
G	4-3½x4	24.5	Remy	Zenith	Remy	C	3	110	30x3½	C		935	....	....	1450	....	....	....
SIMPLEX																			
5	6-4½x6½	45.9	Eismn	Nwcmb	Bosch	D	4	143½	37x5r	QDC		Chassis	6000	....	....	....	....	....
SINGER																			
17	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	136	35x5	QD		3800	†3800	3800	....	....	4750	....
STANDARD																			
8	8-3½x5	33.8	Splitdorf	Zenith	Aplco	D	3	127	35x4½	....		†1950	....	2000	....	2500	3500	....
STANLEY																			
Steamer	2-4 x6	....	....	....	....	..	..	130	34x4½	SS		‡2200	2200	2300	....	....	....	....
STEARNS																			
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	QDC		††1495	1495	....	2050	....	2900	2050
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	123	35x4½	QDC		†2250	....	2250	2900	....	3500	....
STEPHENS																			
60-65	6-3½x4½	25.3	Conn	Zenith	A-Lite	DD	3	115	32x4	....		‡1150	1150	....	....	....	....	....
STUDEBAKER																			
SF-4-40	4-3½x5	24.0	Remy	Schebler	Wagner	C	3	112	34x4	SS		‡985	....	985	....	....	....	1185
ED-6-50	6-3½x5	36.32	Remy	Schebler	Wagner	C	3	122	35x4½	SS		‡1250	....	1250	1750	1700	2600	1450
STUTZ																			
R	4-4½x5½	36.1	Bosch	Stmbg	Remy	C	3	130	34x4½	SS		2375	†2550	*2550	....	....	....	....
SUN																			
17	6-3½x5	23.4	Remy	Rafid	Remy	DP	3	116	34x4	SS		†1145	1095	1145	....	1295	....	....
VELIE																			
28	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	115	32x4	SS		1115	1135	†1135	1750	1685	....	....
27	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	4	124	35x4½	SS		....	....	1600	....	....	....	....
WESTCOTT																			{2190
S-17	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS		†1590	1590	1690	....	....	....	{2090
WHITE																			
16-Valve	4-4½x5½	28.9	Eismn	Own	L.N.	P	4	124½	33x4½	QDC		†4600	....	4600	....	....	....	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	121	34x4½	SS		....	....	1285	....	1950	1950	....
88-8	8-3½x4	36.4	Conn	Tltsn	A-Lite	C	3	125	34x4½	SS		....	....	1950	....	....	....	....
WILLYS																			
88-6	6-3½x5½	29.4	Conn	Tltsn	A-Lite	C	3	125	35x4½	SS		....	....	1325	....	....	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD		2685	2685	2735	3600	3900	3900	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD		3500	3500	3500	4500	4750	4750	....

*6passenger. †4passenger. ‡3passenger.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Tltsn" Tillottson, "Atzr" Atomizer, "Rebh" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myers. NOTE—"37½x5½ r" means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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To Make a Ford into a One-ton Truck



The Dearborn Unit Sells for $350

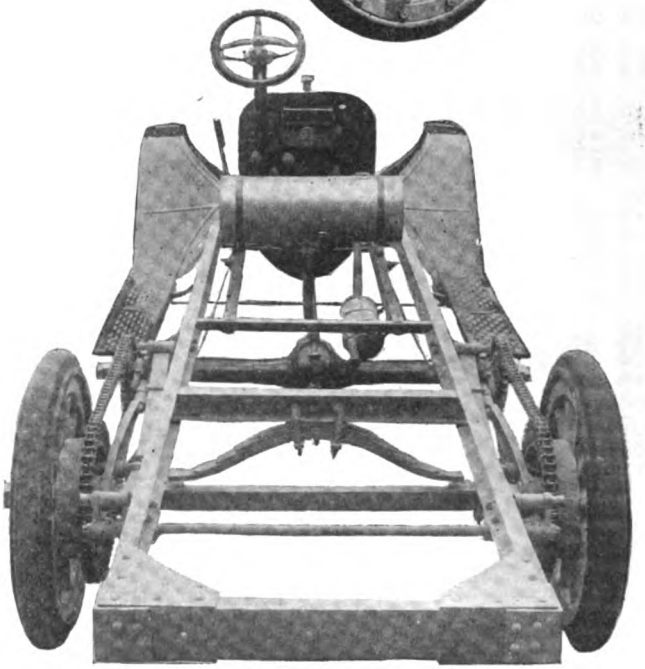
A COMBINATION of the Ford model T chassis of any year and the Dearborn unit, made by the Dearborn Truck Co., Chicago, makes a 1-ton truck. The frame of the unit is 14 ft. long and runs clear up to the radiator on the Ford chassis. It fits snugly and does not require any cutting of the Ford fenders at the dash. The whole unit is light in weight, simple in design and sells for $350.

This unit is practically the rear half of a standard 1-ton truck, so designed that 90 per cent of the load is carried on a rear dead axle with its heavy truck wheels.

The truck is chain driven, using the Ford rear axle as a jackshaft and suspending it on brackets on the Dearborn frame. Sprockets take the place of the Ford rear wheels and from this drive is conducted through chains on each side to the rear axle.

The Dearborn frame, made of 4-in. rolled-channel steel, is bolted to the front of the Ford frame with three bolts on each side of the engine, then bolted to the Ford body flanges immediately back of the dash. The rear ends of the two side members of the Ford frame are riveted to the cross member on the Dearborn frame just above the rear axle assembly of the Ford, which is converted into a jackshaft as stated, and held in place rigidly by hangers designed for the purpose. Both these jackshaft hangers and cross-rod hangers are hot riveted to the frame.

The rear dead axle is rectangular with a 2¼ x 1¾ in. section. It is a drop forging, heat treated, with a carrying capacity of 1½ tons. The side springs are 2-in. wide, 44-in. long and have nine leaves. There is a cross or relief spring over the rear axle 2-in. wide with six leaves.



Coming—THE SHOW CALENDAR—*Events*

Deadwood, S. D.	Fifth Annual; Mgr.: J. E. Nelson.	Mar. 27-31
Clinton, Ia.	Clinton Automobile Dealers Assn., Coliseum; management: Executive Committee.	Mar. 28-31
Providence, R. I.	Rhode Island Automobile Dealers' Assn., State Armory.	April 2-7
Stockton, Cal.	Second Annual San Joaquin Auto Trades Assn.; Mgr.: Samuel S. Cohn.	April 4-7
Milwaukee, Wis.	First Annual Used Car, Milwaukee Automobile Dealers, Inc., Auditorium; Bart J. Ruddle, Mgr.	Apr. 20-26
Spokane, Wash.	Interstate Fair	Sept. 2-8
Milwaukee, Wis.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15
Dallas, Tex.	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-28
Washington, D. C.	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-18

General and Racing

Los Angeles, Cal.	Los Angeles to Salt Lake City, Utah.	April
Uniontown, Pa.	Universal Trophy and Stock Car Races, Uniontown Speedway Assn.	May 10
New York, N. Y.	Metropolitan Race, Sheepshead Bay.	May 19
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	May 30
Walla Walla, Wash.	Track Race, R. A. Hiller, Mgr.	May 30
Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6
Chicago, Ill.	Championship	June 9
Kansas City	Speedway (dirt)	June 16
Cincinnati, O.	Race	June 23
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.	Championship	July 4
Tacoma, Wash.	Championship	July 4
Visalia, Cal.	Road Race	July 4
Spokane	Track Race, R. A. Hiller, Mgr.	July 4
Benton Harbor, Mich.	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Des Moines, Ia.	Championship	July 14
Missoula, Mont.	Track Race, R. A. Hiller, Mgr.	July 15
Intercity Reliability	American Auto. Assn.	July 17-19
Anaconda, Mont.	Track Race, R. A. Hiller, Mgr.	July 22
Great Falls, Mont.	Track Race, R. A. Hiller, Mgr.	July 29
Kansas City, Mo.	Race	Aug. 4
Billings, Mont.	Track Race, R. A. Hiller, Mgr.	Aug. 5
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.	Championship	Sept. 3
Red Bank, N. J.	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.	Hill Climb	Sept. 8
Providence, R. I.	Championship	Sept. 15
Allentown, Pa.	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
New York	Speedway Races	Sept. 29
New York, N. Y.	Championship	Sept. 29
Uniontown, Pa.	Speedway Races	Sept. 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Oct. 6
Kansas City, Mo.	Championship	Oct. 6
Danbury, Conn.	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.	Race	Oct. 13
Richmond, Va.	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13
New York, N. Y.	Race	Oct. 27

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MICHELIN



There's profit in the tire business (and reputation, too, if you sell a good Tire)



If you put your shoulder to the wheel you can sell almost any make of tire, at least for a time.

Your local reputation will enable you to do that.

But what you want is not a tire that uses up your prestige but one that will automatically make your prestige greater.

That is why the Michelin proposition is the **best** for the dealer who is looking ahead for **permanent** success.

Michelin Tires are the best that can be made, yet they sell at prices considerably below the average. Consequently every Michelin user gets real tire economy and is a booster not only for Michelin but for the dealer who sold him his tires.

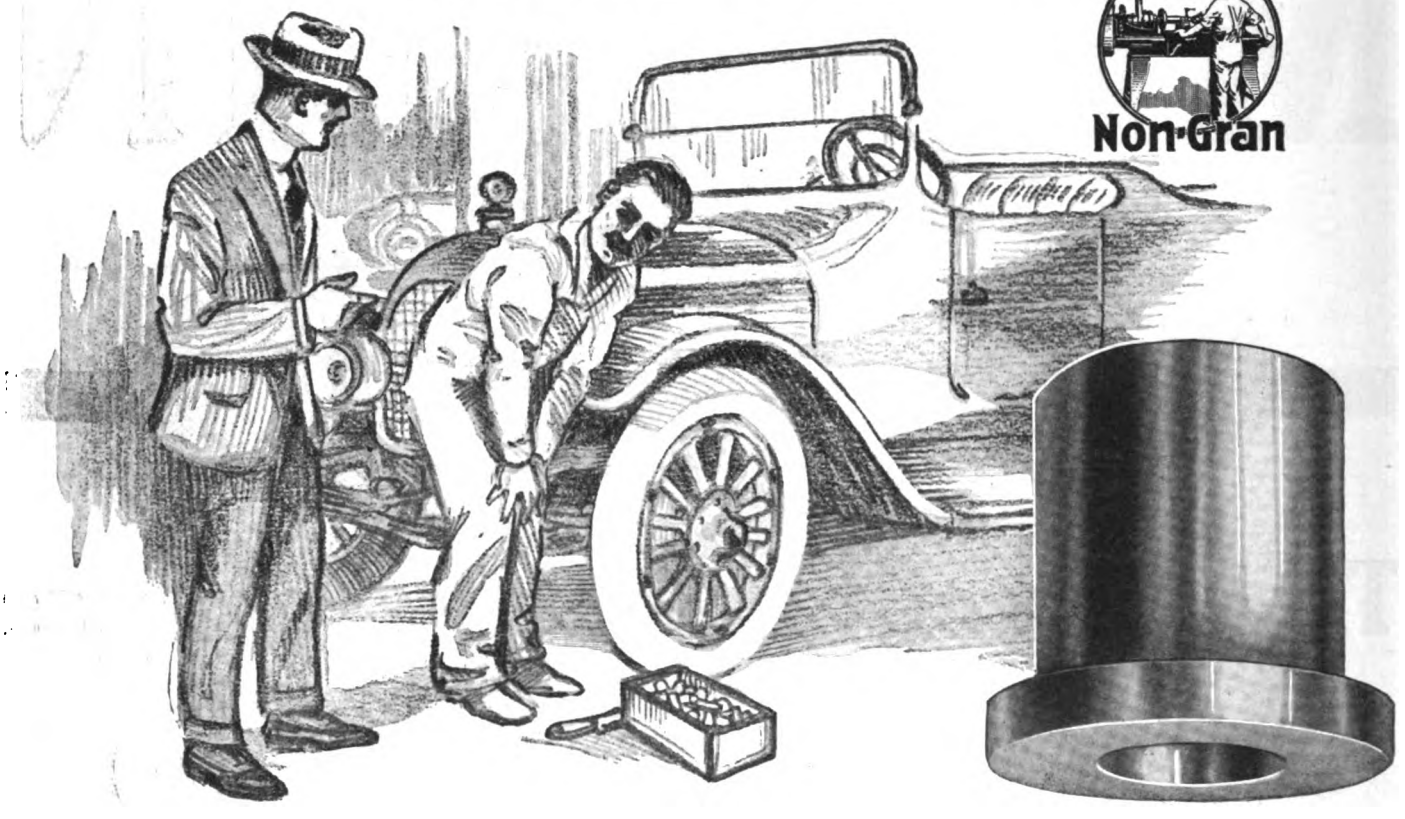
Let us tell you about the Michelin proposition.

Michelin Tire Company Milltown, N. J.

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Have You Ever Wondered
Why Some Cars Rattle?

Flawless Non-Gran



Have you ever wondered why some cars rattle?

Rattles, vibrations, knocks and power loss are caused by **worn bushings.**

Worn bushings mean *loose fitting* bushings.

Loose fitting bushings cause most motor ailments.

It is vitally important, then, that the bushings of your car should be made, in the first place, of the finest bearing bronze money can buy. The re-sale value and service life of a car are directly dependent upon the wear-resisting quality of the wear-subjected parts—the bushings.

No car can wear longer than its bushings. When the bushings wear out the car must be overhauled and new bushings substituted.

NON-GRAN is acknowledged the world's finest long-wearing QUALITY bearing bronze.

The bushings in quality-built cars are almost invariably NON-GRAN.

Any high-grade repairman can replace the worn bushing in *your* car with NON-GRAN Bushings, for practically all high-grade repairmen carry an assortment of NON-GRAN Cored Bars from which they make their bushings.

Should any car salesman or repairman try to convince you that a cheaper bronze will do just as well, be guided by the judgment of experienced men who really know.

Marmon, Stutz, Locomobile, Mercer, Stearns, Mack, Federal, Timken, Sheldon and scores of others all use NON-GRAN Bushings. You may be sure these firms would not pay more for NON-GRAN if it did not possess *distinctly* superior wearing qualities.

When having your car overhauled, specify that all worn bushings be replaced with NON-GRAN Bushings. Protect yourself against future overhauling expenses. Add to the service life of your car. Add to its re-sale value.

When buying a new car be sure to look into this important matter of bushings carefully. Play safe—remember. *No car can wear longer than its bushings.*

American Bronze Company
Berwyn · · · Pennsylvania

HIGH SPEED
NON-GRAN
BEARING BRONZE



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A Long Service High Quality Tire-Built by Expert Tire Builders

The 5,000-mile guarantee is simply evidence of what you can be sure of getting. What you can expect is the much greater uninterrupted mileage that thousands of motorists have already secured from this superior tire.

Dealers Add Their Personal Guarantee

Our dealers have gotten aggressively behind

DELION TIRES

to the extent of supplementing the factory guarantee with their personal assurance of DELION quality, on which they have willingly staked their business reputation.

Our exclusive territory proposition, backed by Delion's master-built quality, has made this an exceptionally profitable effort in tire merchandising.

Why Not Write at Once for Details?

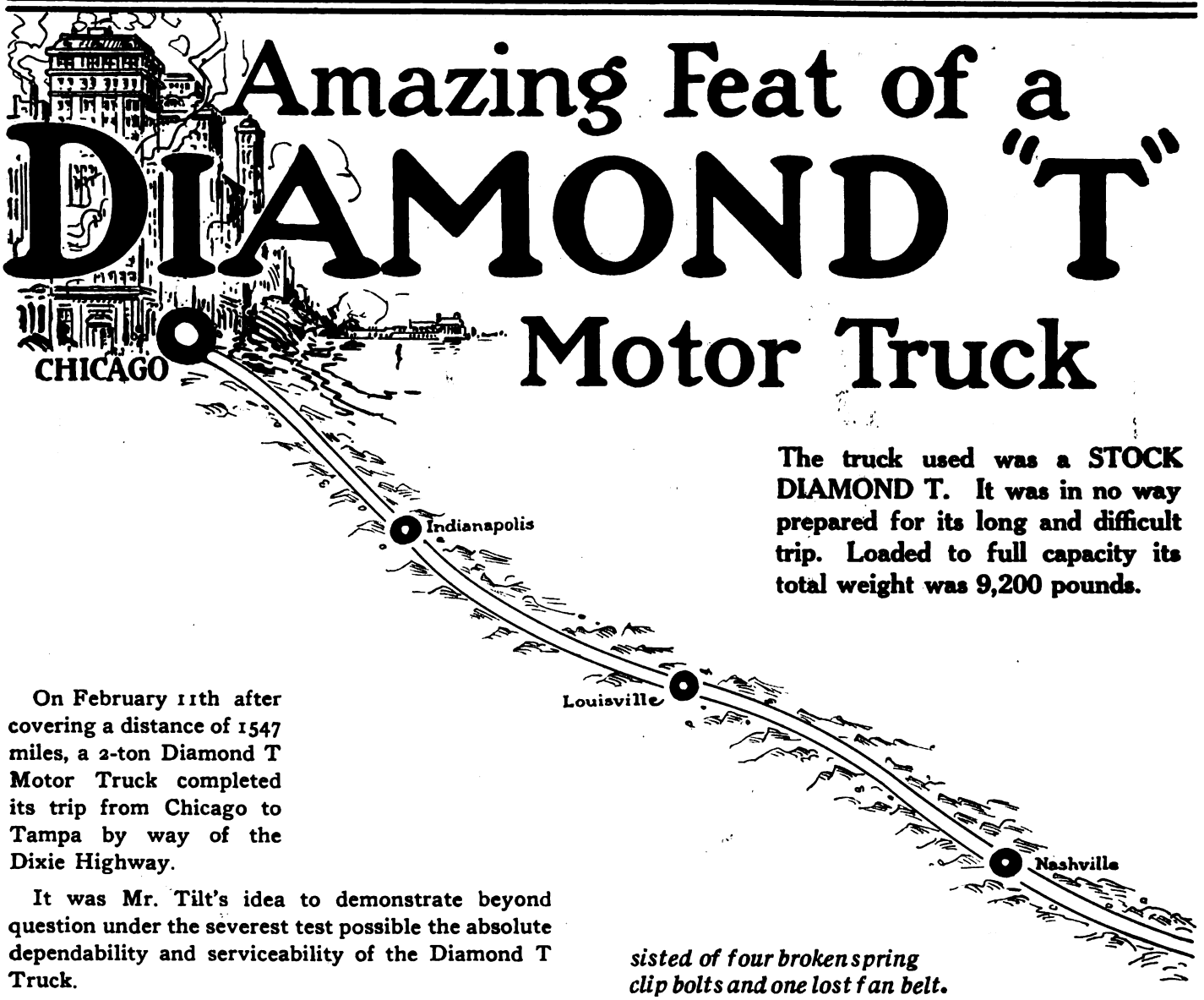
DELION TIRE & RUBBER CO., Inc.

Main Office: 1922 Broadway, New York Western Office: 3449 Michigan Ave., Chicago

Factory: Trenton, N.J.

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Amazing Feat of a DIAMOND "T" Motor Truck



The truck used was a STOCK DIAMOND T. It was in no way prepared for its long and difficult trip. Loaded to full capacity its total weight was 9,200 pounds.

On February 11th after covering a distance of 1547 miles, a 2-ton Diamond T Motor Truck completed its trip from Chicago to Tampa by way of the Dixie Highway.

It was Mr. Tilt's idea to demonstrate beyond question under the severest test possible the absolute dependability and serviceability of the Diamond T Truck.

No other truck was ever put to so severe a test. Day after day it was forced to travel though rain, through soft mud and clay that reached up over the hubs, through drifts of snow, over miles and miles of frozen rutty roads, through streams, up almost perpendicular hills and rarely out of freezing weather.

Yet the Diamond T motor, after 1547 miles of that terrific strain, showed no wear whatever. The motor's condition was, to experts, almost unbelievable.

The entire breakage from Chicago to Tampa consisted of four broken spring clip bolts and one lost fan belt.

The front tires showed absolutely no signs of wear. And the only marks on the rear tires were those caused by the chains, the damage not being enough to affect their mileage in any way.

This wonderful achievement proves that the Diamond T has even more endurance than was ever claimed for it.

Men prominent in automobile circles are willing to wager that no truck made will equal the remarkable feat of this Diamond T Truck for some time to come under equally trying conditions.

DIAMOND T MOTOR CAR CO. DIAMOND CHICAGO. ILL. U.S.A.

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Chicago to Tampa

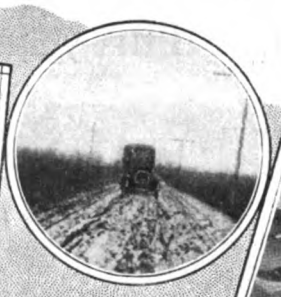
1547 Miles With Full

Capacity Load in Mid-Winter



These are actual photographs taken by the drivers themselves on the trip. They, better than anything we might say, give an idea of the road conditions this truck encountered.





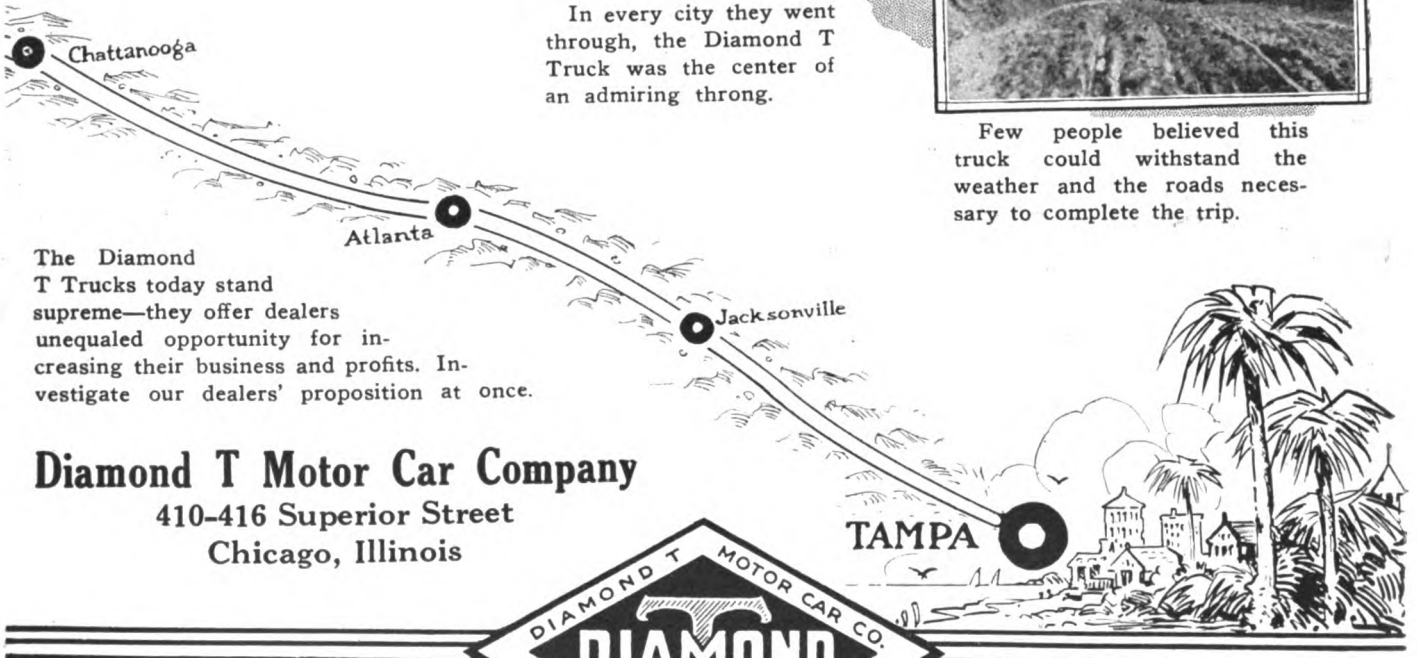




In every city they went through, the Diamond T Truck was the center of an admiring throng.



Few people believed this truck could withstand the weather and the roads necessary to complete the trip.



The Diamond T Trucks today stand supreme—they offer dealers unequaled opportunity for increasing their business and profits. Investigate our dealers' proposition at once.

Diamond T Motor Car Company
410-416 Superior Street
Chicago, Illinois

DIAMOND T MOTOR CAR CO. DIAMOND CHICAGO. ILL. U.S.A.

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QUALITY TRUCKS Stewart QUANTITY PRICES

Stewart sales for 1917—

Five years reputation for in-built merit made Stewart sales increase 574% last year. This year, Stewarts are in greater demand than ever.

The Why of Stewart Success

The Stewart line offers the ideal truck proposition for automobile dealers. Its three popular sized models meet 80% of all trucking requirements.

The possible market for Stewart Trucks is limited only by the number of live merchants and manufacturers in a dealer's territory.

The Stewart reputation insures a big sale for any energetic dealer. Last year our sales increased 574% over the preceding season. In the past our sales have only been limited by the number of trucks we could build.

PROMPT DELIVERIES

This year we predict that prompt delivery will be a bigger problem than ever before. But Stewart dealers are protected by the fact that we have already purchased more than $3,000,000 worth of materials for 1917 trucks.

EASY PAYMENT PLAN

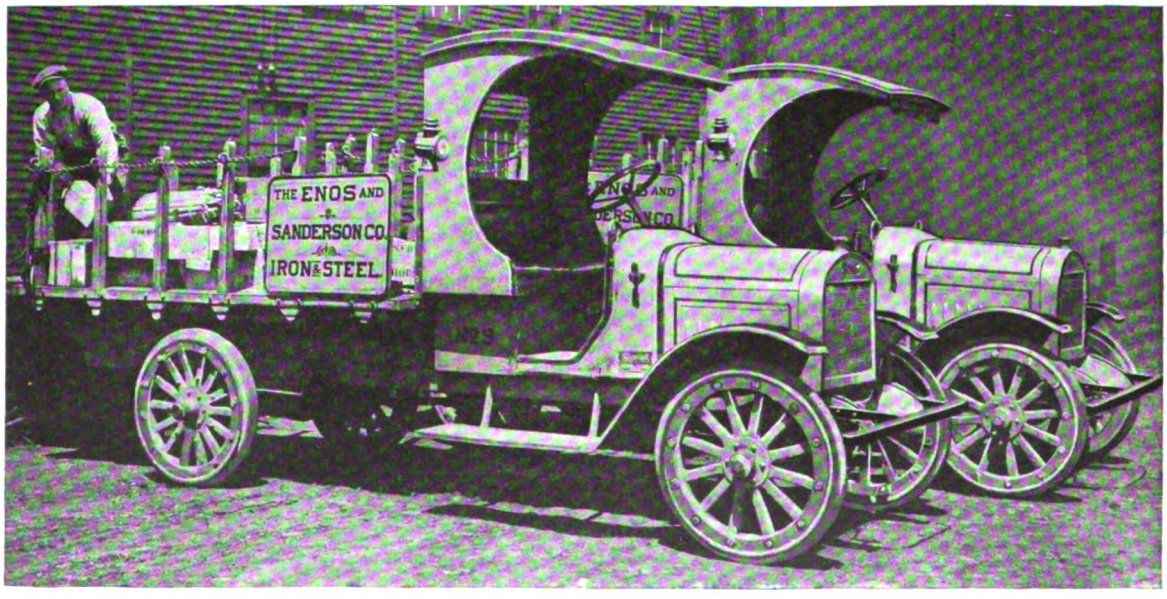
The Stewart Easy Payment Plan is a big advantage without added expense or risk for the dealer.

It means that the merchant and manufacturer can buy up-to-date equipment and let it pay for itself.

It means that the dealer can double his business by selling those who need a truck as well as those who are ready to buy.

The Stewart dealer has a full hand of selling points. He can meet any competition, whether it is on Price, Quality, Economy, Reputation, Time Payment or Performance.

The Stewart Dealer Organization is almost complete. But we are always ready to add a new dealer in unoccupied territory when it is proved that this dealer has the proper energy, ability and experience to make a success in his territory.



Model 4 CHASSIS

$1485

Capacity 1½ Tons

General Specifications

Four-cylinder motor; horse power 30; Zenith carburetor; magneto; three-speed transmission; multiple-disc dry-plate clutch; internal-gear drive axle; tires solid, 34x3½ front, 34x5 rear. Wheelbase 140". Many styles of bodies.

STEWART MOTOR CORPORATION, Buffalo, N. Y.

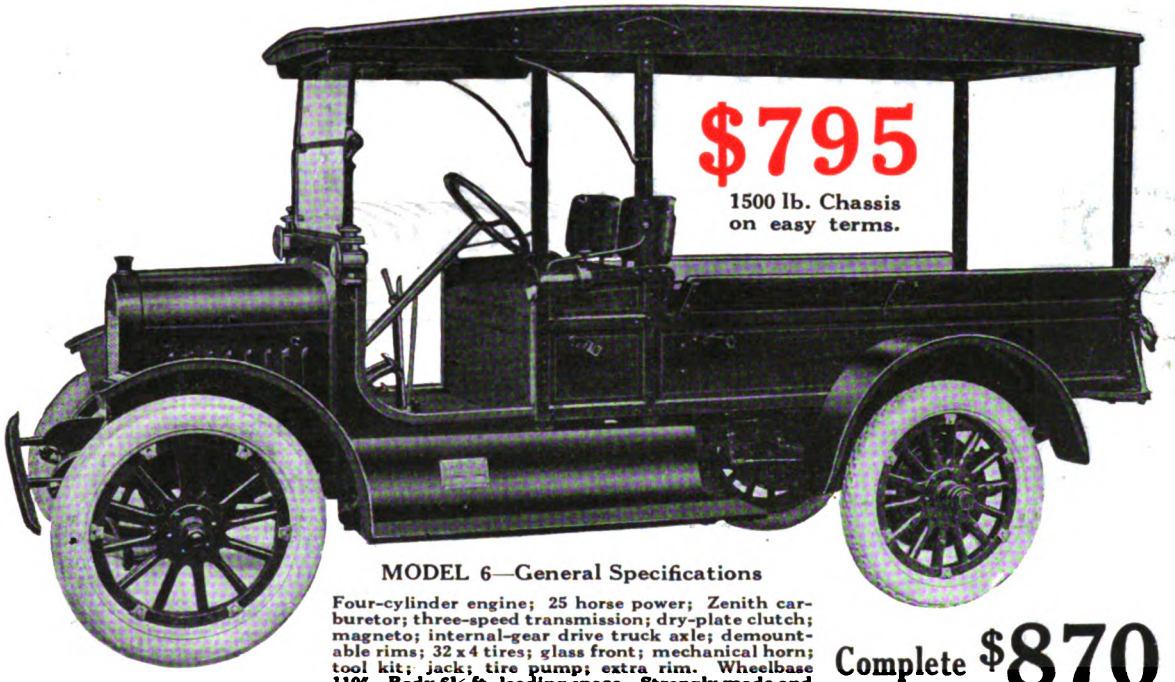
When writing advertisers please mention Motor World—It identifies you

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QUALITY TRUCKS Stewart QUANTITY PRICES

double last year's record

In January, the Stewart business was twice what it was last January.
In February 1917 Stewart sales more than double February 1916.



MODEL 6—General Specifications

Four-cylinder engine; 25 horse power; Zenith carburetor; three-speed transmission; dry-plate clutch; magneto; internal-gear drive truck axle; demountable rims; 32 x 4 tires; glass front; mechanical horn; tool kit; jack; tire pump; extra rim. Wheelbase 110". Body 6½ ft. loading space. Strongly made and beautifully finished.

Complete $870

Three Stewart Models for 1917

Model 6. Capacity 1500 lbs. Chassis $795 **Model 3. Capacity 1 Ton. Chassis $1390**
Model 4. Capacity 1½ Tons. Chassis $1585

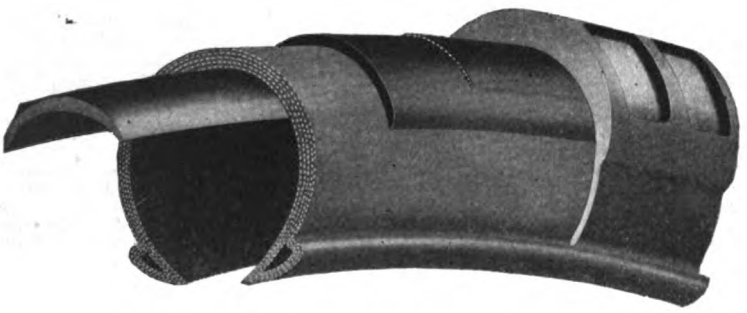
The Best Dealers' Proposition in the Delivery Truck Field

Write to-day for full details of Stewart Delivery Trucks for 1917.

STEWART MOTOR CORPORATION, Buffalo, N. Y.

When writing advertisers please mention Motor World—It identifies you

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WOODWORTH

A Fast, Resilient Quality Tire

Guaranteed not only to travel 5000 miles—
But to do it without Puncture or Blow Out!

THE PUNCTURE PROOF FEATURE of the Woodworth is simply an ADDITIONAL reason for buying it.

AS GOOD AS THE BEST of other tires in every other way—the Woodworth surpasses them all in puncture proofness.

BOTH RUBBER AND FABRIC used in its manufacture are carefully selected and of the highest quality obtainable.

IT IS BUILT with all the painstaking care necessary to produce a tire of the highest possible class.

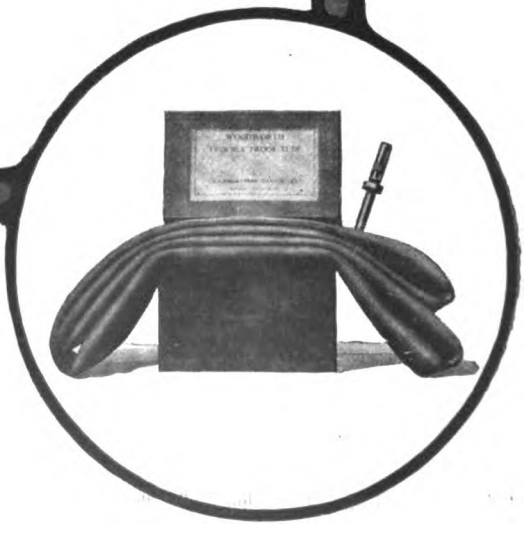
THEN—AFTER IT IS FINISHED—a smooth, perfect-fitting strip of non-heating chrome-leather is added on the inside to protect the inner tube against puncture or blow-out.

WOODWORTH TUBES are hand made. Carefully crossplied to prevent tearing in any direction; they are tough, stretchy, lively, non-porous.

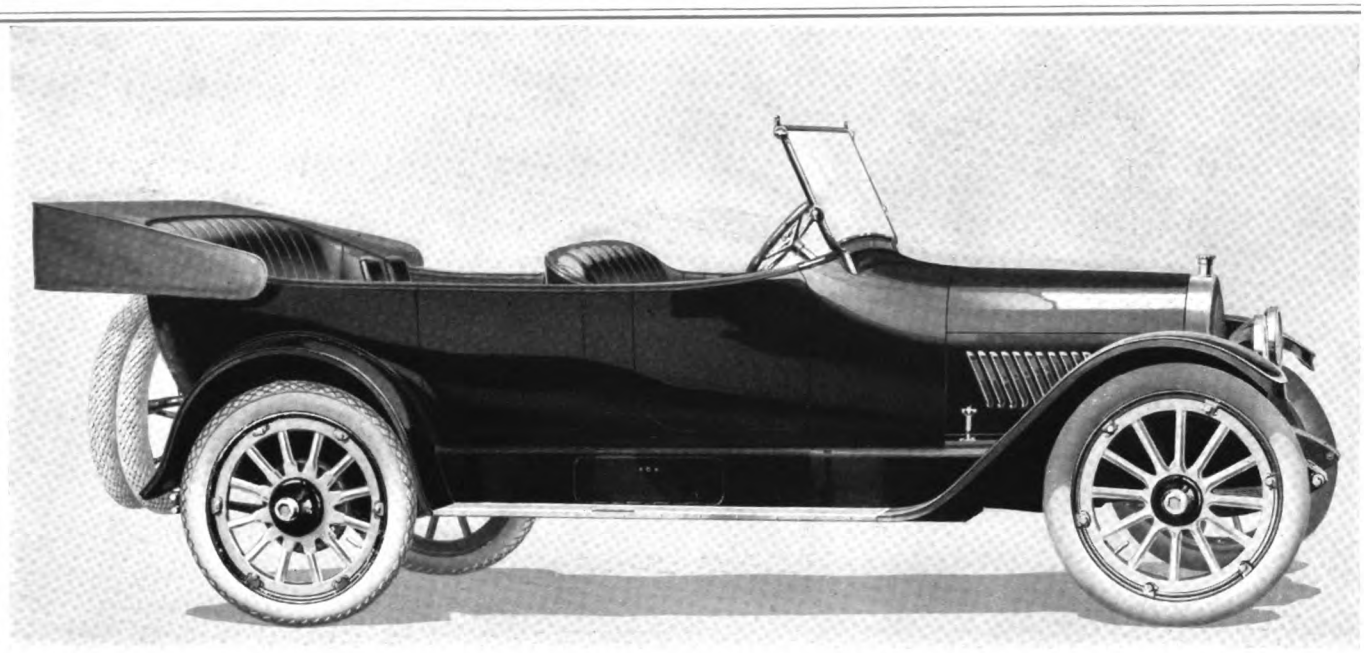
OUR ABSOLUTE GUARANTEE, together with our unusually favorable shipping facilities (prepaid) make them a splendid dealer proposition.

Write for full particulars.

Woodworth Manufacturing Corp.
NIAGARA FALLS, NEW YORK
CANADIAN FACTORY, NIAGARA FALLS, ONTARIO



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Beauty—Comfort

AFTER the demonstration, in which you have proved beyond his expectations the power and flexibility of the Oldsmobile motor, the car buyer is interested in the beauty, appointments, and comfort of the car. Beauty and comfort are there for him to see and experience. He does not have to depend upon a description or take your word for anything. There they are, unchangeable by oral effort. Oftentimes these features are the deciding factor in a sale.

NEW SERIES
MODEL 45

Oldsmobile

NINETEENTH YEAR

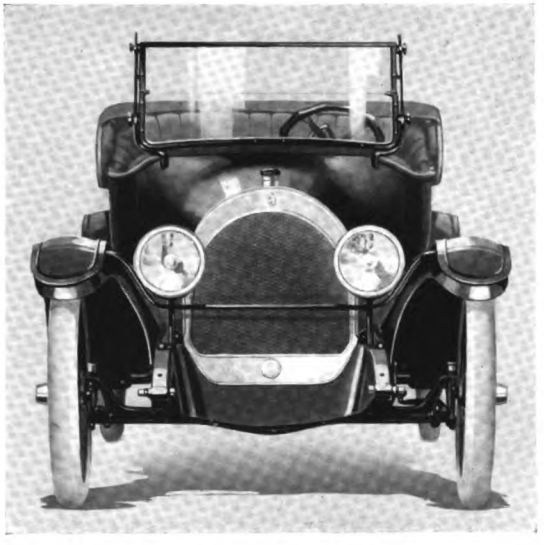
In any of its six body styles this is a car of beauty and comfort away beyond the average.

Its sales points in power, smooth running, light reciprocating parts, flexibility, acceleration, comfort, convenience, and beauty are *self-evident*.

Its value is readily apparent.

It is a car that is easy to sell. The demand is making it necessary constantly to enlarge our dealer organization. Responsible dealers will be added in open territory who will carry the Oldsmobile as a leader.

To such we shall gladly send particulars of our dealer arrangement.



OLDS MOTOR WORKS
Lansing, Michigan

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NEW SERIES
MODEL 45

Oldsmobile

NINETEENTH YEAR

The Oldsmobile line consists of—

Seven Passenger Touring Car	$1367	Four Passenger Club Roadster	$1295
Five Passenger Touring Car	1295	Sedan	1850
Two Passenger Roadster	1295	Cabriolet	1775

Details of the New Series

WHEEL BASE—120 inches, with unusually ample body.

MOTOR—Eight cylinder, V-type, high speed motor, light weight, drop forged connecting rods, and nine-ounce aluminum alloy pistons, reducing internal resistance, vibration, and bearing pressure to a minimum. L-head with inclined valves. Cylinders cast four en-bloc, with adjoining half of crank case; only two castings, bearings in left-hand block—patented feature. Three-point suspension. Motor develops 50 horsepower brake test.

LUBRICATION—Force feed by gear pump direct to bearings. Pressure indicated by oil gauge on dash.

ELECTRIC SYSTEM—Oldsmobile—Delco lighting, starting, and ignition.

SPARK ADVANCE—Automatic.

CARBURETOR—Automatic compensating type, minus springs, water jacketed.

GASOLINE SYSTEM—Vacuum feed type, gasoline tank in rear.

TRANSMISSION—Unit with motor, selective type, center control. Three speeds forward and reverse. Hardened steel gears, transmission shaft mounted on ball and roller bearings.

CLUTCH—Leather faced, cone type.

DRIVE—Hotchkiss type, through rear springs. Tubular drive shaft with two extra large universal joints.

REAR AXLE—Full floating, spiral bevel type.

BRAKES—Service brakes, external contracting; emergency brakes internal expanding. Brakes adjustable by thumb nut.

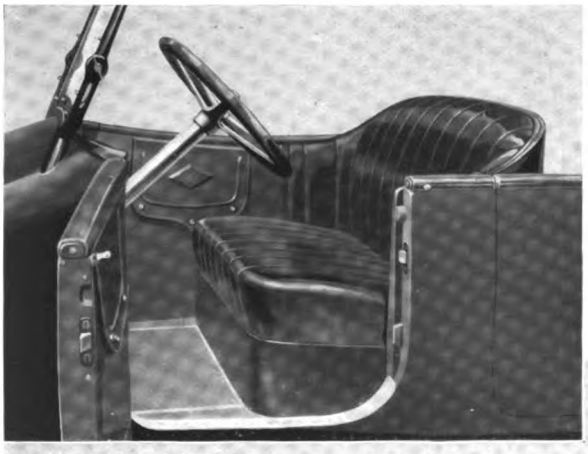
SPRINGS—Front, semi-elliptic. Rear, three-quarter elliptic, underslung.

UPHOLSTERY—Extra quality, long grain, bright finish black leather, box pleated, with no buttons to gather dust and dirt.

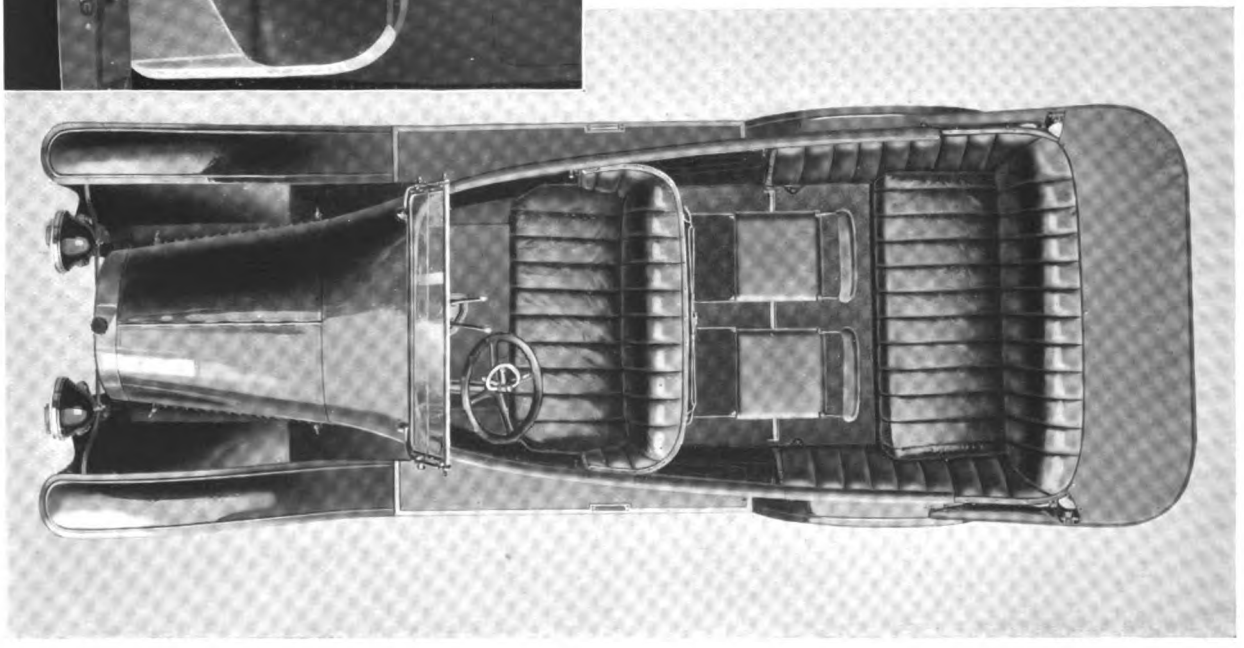
DASH—Walnut, with nickel finish instruments, mounted flush—oil pressure gauge, speedometer, eight-day clock, ammeter, and lighting and ignition switches.

LAMPS—Double bulb headlights. Tail light, dash light, tonneau light.

TIRES—33 x 4 on all but 7-passenger which carries 34 x 4. Non-skid on rear wheels throughout.



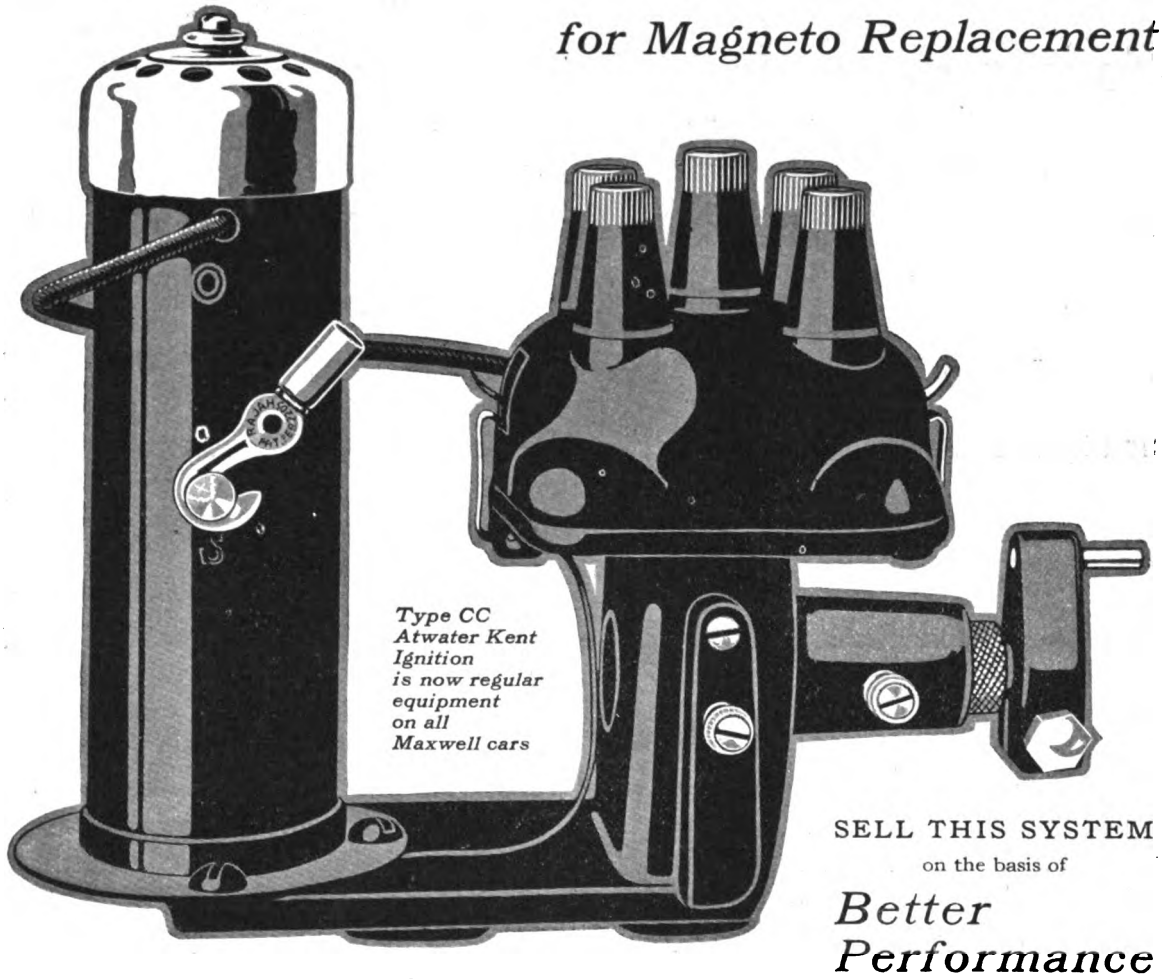
OLDS MOTOR WORKS
Lansing, Michigan



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ATWATER KENT
SCIENTIFIC IGNITION

for Magneto Replacement



Type CC Atwater Kent Ignition is now regular equipment on all Maxwell cars

SELL THIS SYSTEM
on the basis of
Better Performance

Mr. Dealer

IT is not necessary for us to sell *you* battery ignition. *You* do not care particularly whether battery ignition is better than magneto ignition. The one thing you *are* interested in is, "How can I cash in on the change that is taking—*has* taken—place?"

90 per cent. of 1917-18 cars** (exclusive of FORDS) **will be equipped with battery ignition in place of the magneto

A large percentage of these will be ATWATER KENT equipped.

Every magneto equipped car will be a better car if it is ATWATER KENT equipped.
Every magneto equipped car is an opportunity for you to make an ATWATER KENT sale.
Every ATWATER KENT sale will make a satisfied car owner, who will thank you for suggesting ATWATER KENT.
Every pleased ATWATER KENT owner will bring you other customers.

THIS IS YOUR OPPORTUNITY

The CC System will provide a bigger, hotter, more uniform spark at all speeds than any other ignition system of its type. It will give greater and smoother acceleration. It will admit of greater flexibility of motor operation—requires little or no attention—only one adjustment and that easily made with one hand and a screwdriver. The mechanism will outlast the car. It is fool, oil and moisture proof.

ATWATER KENT Type CC Ignition is the product of years of painstaking laboratory and mechanical research and is a finished instrument in every point of workmanship, accuracy, finish and performance.

The user of an ATWATER KENT equipped car is an ATWATER KENT enthusiast—he realizes increased pleasure, satisfaction, car performance and safety of driving.

ATWATER KENT MANUFACTURING WORKS, PHILADELPHIA, PA.

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Safety depends on your brake lining— and that's a matter of the fibre that is in it

IN the brake lining it's the quality of the asbestos *fibre* that counts —and high-grade fibre grows scarcer every day. But that's another argument for NON-BURN, for it's made at asbestos headquarters—Johns-Manville. We mine our own asbestos, hence have exceptional facilities for discriminating fibre selection. And of the thousands of tons produced annually, our experts choose for NON-BURN only the choicest fibre, strong and uniform.

Years ago, making linings and blocks for big hoists, we learned the value of fibre selection. And today this same goodness of raw material is the secret of NON-BURN safety, of its long wear and economy—the one biggest reason why you should ask for NON-BURN when you buy a car, and insist on it when re-equipping. Get it from your dealer.

To the Trade—Johns-Manville NON-BURN is a product that's *right*—and with our own sources of raw material and an output largely increased by new equipment, we're prepared for even bigger business.

The sales policy behind NON-BURN will satisfy you as completely as the lining satisfies your customers. Johns-Manville NON-BURN is sold only through jobber-dealer channels, and jobbers' and dealers' margins are strictly maintained. Discounts are generous and *uniform*, regardless of quantity, so you needn't overstock to assure your profits. And we're building up a big demand by consistent national advertising. So our proposition is a profitable one from every angle, for every jobber and dealer. Why not write—today—and have your name put on the Johns-Manville List.

H. W. JOHNS-MANVILLE COMPANY
NEW YORK CITY
10 FACTORIES—BRANCHES IN 55 LARGE CITIES

The line of Johns-Manville Automobile Accessories includes NON-BURN Asbestos Brake Lining, Fire Extinguishers, Speedometers, Spark Plugs, Auto Fuses, Tapes, etc. Complete details on application.

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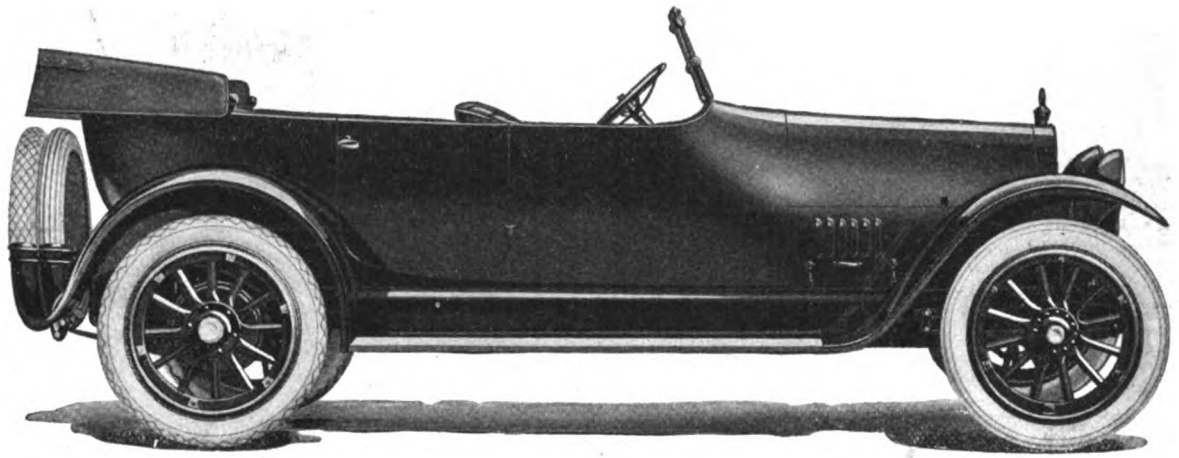


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KISSELKAR
EVERY INCH A CAR

Announcing the nearest approach to the ultimate in motor car performance

The Double Six



Wanted—Big Men to Handle This Unusual Car

Kissel's new DOUBLE SIX is a **wonder car**—in **engine ability** and **chassis sturdiness**—a pattern car in **beauty, comfort** and **roominess.**

Its advent into your city will cause an immediate demand. **There is no doubt about it—it is an unusual car, as specifications will prove.**

We want dealers—**big men**—who judge the **future** by **past performance**—to supply the demand for Kissel's DOUBLE SIX and HUNDRED POINT SIX.

Price is $2,250, with seven-passenger touring body.

Write or wire.

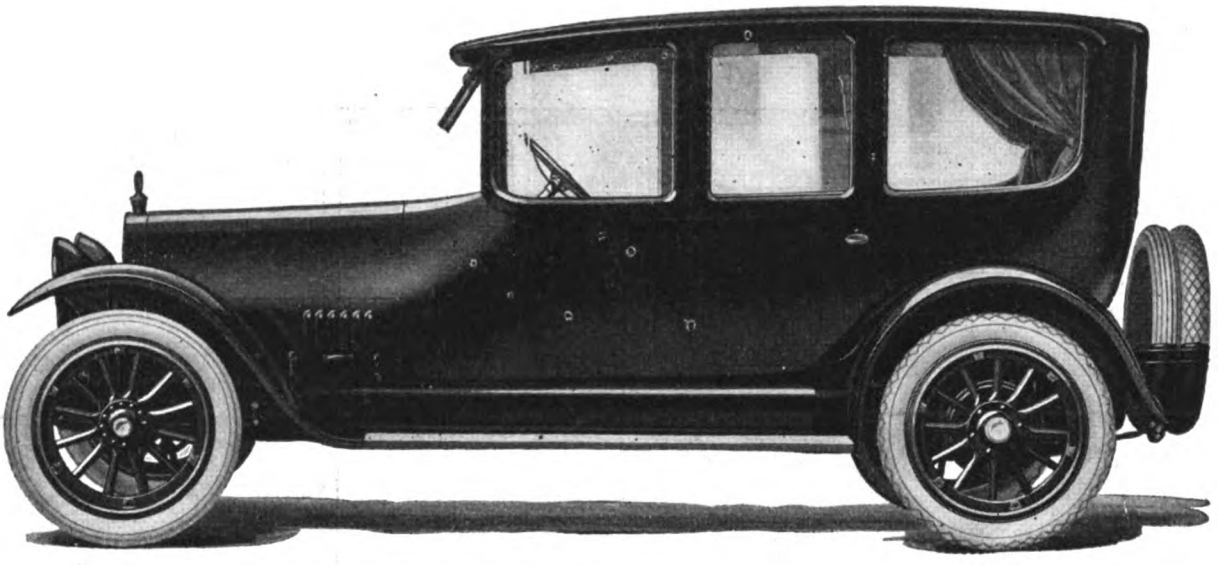
Kissel Motor Car Company
Hartford, Wisconsin, U. S. A.

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KISSELKAR
EVERY INCH A CAR

Announcing the nearest approach to the ultimate in convertible car construction

The ALL-YEAR Double Six



The Big Business Opportunity Open to These Big Men

Like the HUNDRED POINT SIX, Kissel's DOUBLE SIX carries the ALL-YEAR Top—the idea that changed the motoring habits of a nation—

A spacious seven-passenger Salon Touring Car—depicting the ultra in appearance, appointment and ability.

The DOUBLE-SIX ALL-YEAR Car is $2,650.

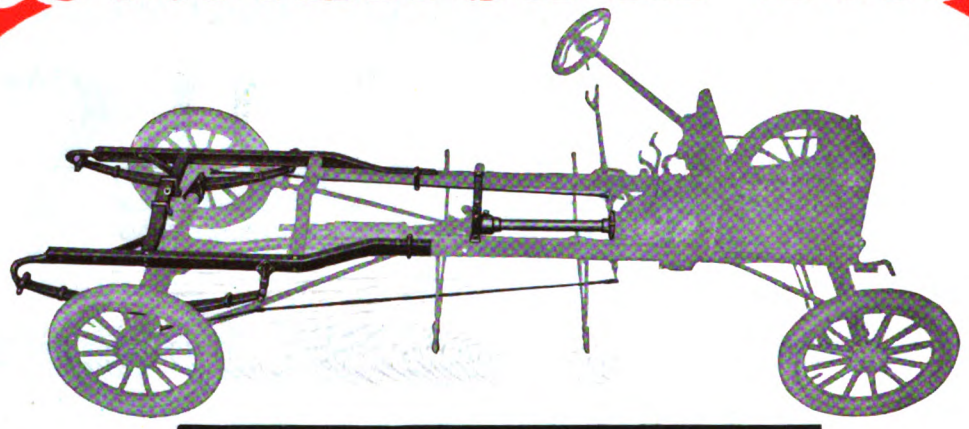
Its unusual value can have only one result—a sweeping success for KisselKar dealers.

Prepare in advance—send for specifications.

Kissel Motor Car Company
Hartford, Wisconsin, U. S. A.

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AMES
COMMERCIAL UNIT



Patent Applied For

Advantages of Ames Commercial Unit over Ford and Other Units:

- Lengthens wheel base.
- Increases loading space 50%.
- Strengthens Ford rear axle by use of 5,000 lb. tensile strength truss rod.
- Extension Frame is supported by semi-elliptic side springs in addition to Ford Rear Spring.
- Increases width of Ford Frame from 23" to 34" over rear axle.
- Six distinct models for six distinct purposes $55 to $112.50.

Makes a ¾-1 Ton Shaft Drive Truck

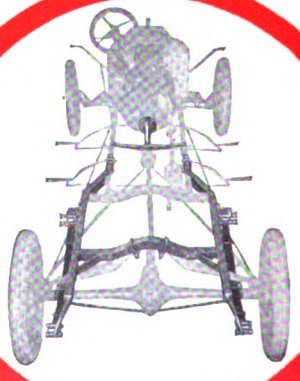
THE Ames Commercial Unit is not an experiment or makeshift. It embodies all the sound principles used in automobile construction and attaches to a Ford without even a hole drilled.

It is the *real solution* of the light delivery problem. Adds 50% carrying space, saves one-third in time and trips.

For $97.50 and a Ford

DEALERS:

THERE are thousands of merchants and business men in every line who will make shaft drive trucks with the Ames Commercial Unit. With the Ames Commercial Unit you have no *competition*. It covers the chain drive truck unit field like a blanket. Makes a ¾—1 Ton Truck out of a Ford for $97.50—⅓ the price of chain drive units.



A Combination of *All* Other Extension Units with *Still Added Features.*

Write for Booklet and agency terms—now—before some one in that vicinity beats you to it.

THE F. A. AMES COMPANY
(Incorporated)

Motor Division

OWENSBORO, KENTUCKY

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Ames-ton
WORM-DRIVE TRUCK UNIT

A KENTUCKY THOROBRED



EMPIRE WORM DRIVE AXLE

For FORDS $425.00
3000 LB. (MAXIMUM)

AMESTON users are satisfied truck owners–because the Ameston gives real truck service. It is worm drive. The only worm drive truck unit made.

Business men realize that chain drive trucks are rapidly being replaced with *worm drive*.

DEALERS!

Ameston Dealers are prosperous.
Ameston sales are easy.
Ameston sales are quick.
Amestons once sold stay sold.
No service, no come backs.
Everybody satisfied.
Everybody happy.
Some valuable territory open.
Write now for terms.
Better still—wire.

NO truck manufacturer has ever before attempted to market a worm drive truck of 3,000 pounds capacity for less than twice the cost of the Ameston Truck Unit and Ford Chassis combined.

That's why everyone who investigates buys the Ameston.

The Ameston Worm Drive Truck Unit attached to a Ford makes a 3,000 pound worm drive truck of *unquestioned* durability. Everybody knows the Ford is dependable—and everybody knows that worm drive is dependable. It is an established fact.

Three Models

Model 20—120″ *wheel base* $425
Model 44—144″ *wheel base* $475
Model 70—170″ *wheel base* $525

We also manufacture the best line of Commercial Bodies in the world. Get our prices.

THE F. A. AMES COMPANY
(Incorporated)
Motor Division OWENSBORO, KENTUCKY

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Prepared for the inevitable

Tail lights *will* burn out—on the road. Your customers are taking a chance if they don't have *spare* lamps with them.

For the price of a tire you can stock an Edison MAZDA Auto Lamp Assortment that makes a bully counter display; and by means of the auto lamp guide we furnish, you can load our handy auto lamp chest with exactly the right lamps for any car.

This is *renewal* business with a good many turnovers a year.

You sell extra tires—why not extra lamps—and extra good lamps while you are about it?

Let us put you in touch with nearest distributor.

Edison Lamp Works

Of General Electric Company

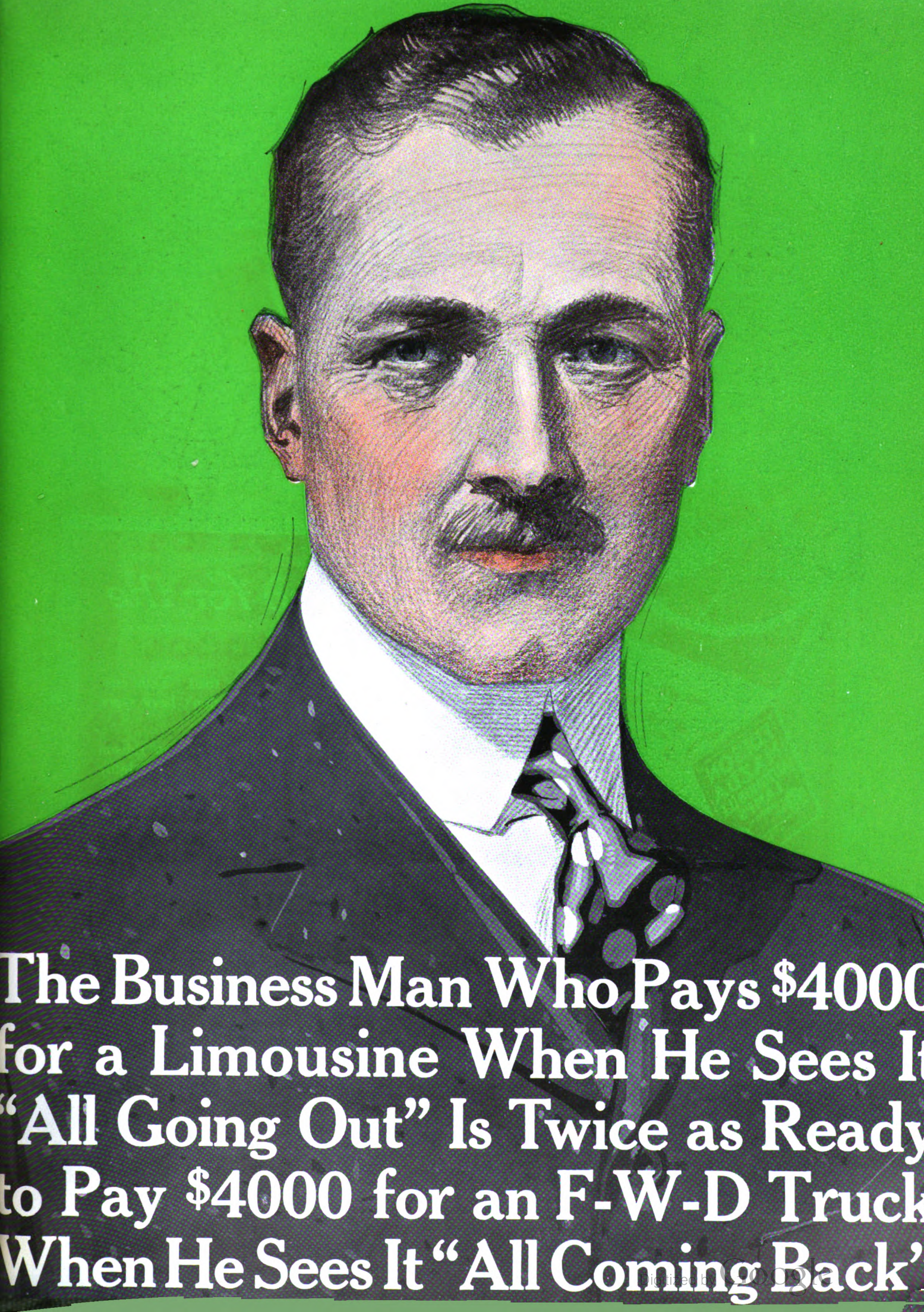
Harrison, N. J. **Agencies Everywhere**

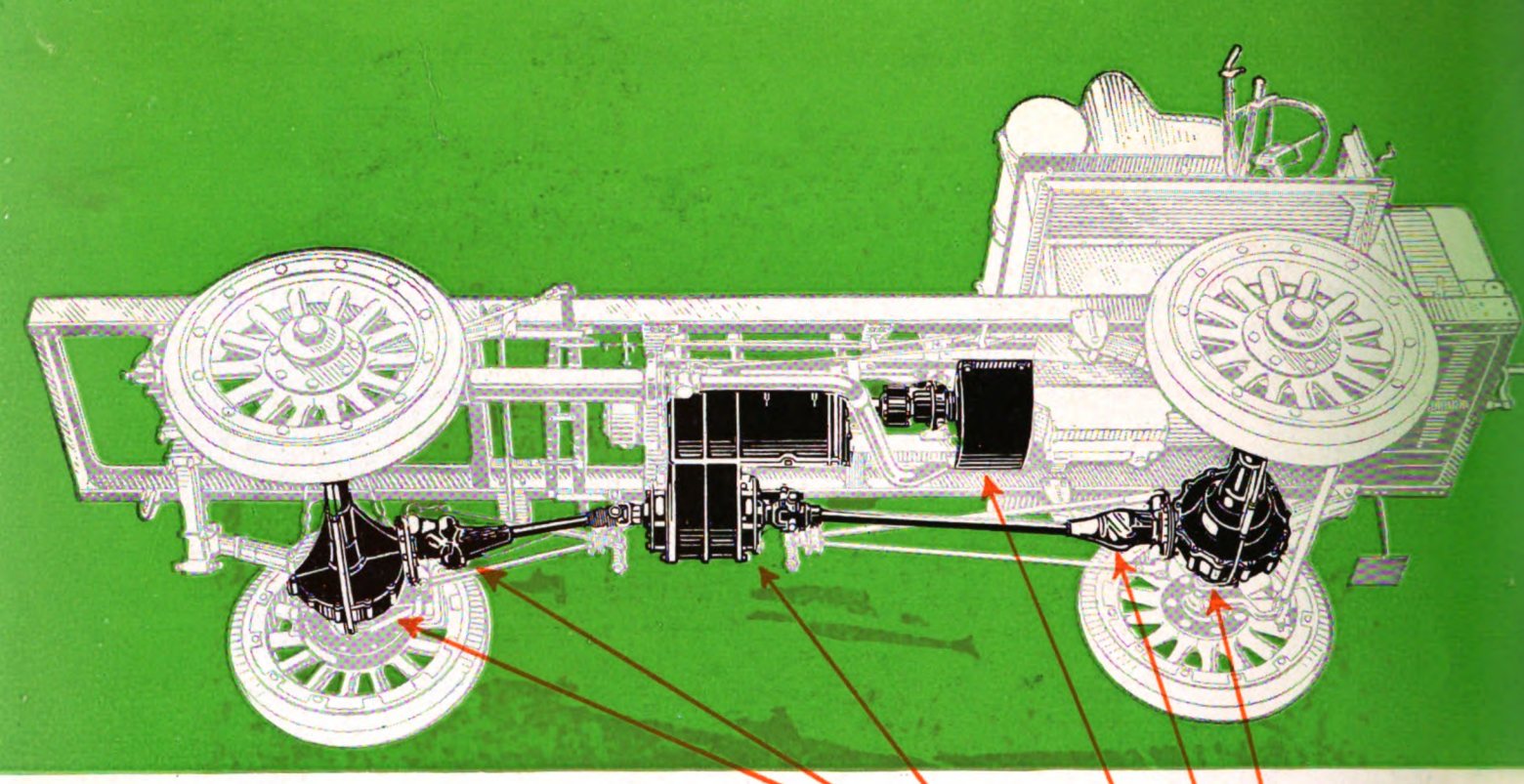
6925

EDISON MAZDA Automobile Lamps

His Only Rival — EDISON MAZDA LAMPS

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The Business Man Who Pays $4000
for a Limousine When He Sees It
"All Going Out" Is Twice as Ready
to Pay $4000 for an F-W-D Truck
When He Sees It "All Coming Back"



Driving Power in All Four Wheels

Look at this construction. This is the simple and direct manner in which the four wheel drive principle is transmitted from the power plant to the road wheels in F. W. D. trucks.

Instead of *all* the power being shot clear back to the rear axle, leaving the front end a dead and idle load, the power is *divided*, sending half to the front and half to the rear axle, making every wheel a power wheel.

This is why F. W. D. trucks will out-demonstrate anything on four wheels, not only in daily average service but in super-service, in sand, mud, broken stone, on hills and over otherwise impassable going where other trucks will not perform.

Multiple Disc Clutch through which power is conveyed from the engine to the transmission.

Forward Differential and propeller shaft. Power is conveyed to the front live axle precisely in the same manner as to the rear axle.

Rear Differential and propeller shaft through which half the engine power is transmitted to the rear road wheels.

The exclusive F.W.D. *Center Differential* through which the power is divided and sent to front and rear axles. Its equalizing action between the two axles is precisely the same as that of the front and rear differential between two wheels.

FWD

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Tire manufacturers give to users of F. W. D. trucks with four six-inch tires, the same guarantee which they give on rear-drive trucks with six six-inch or dual rear tires.

Economy

Every truck user knows, and every dealer knows that the big, definite expense that constantly looms up in truck operation, is tire cost.



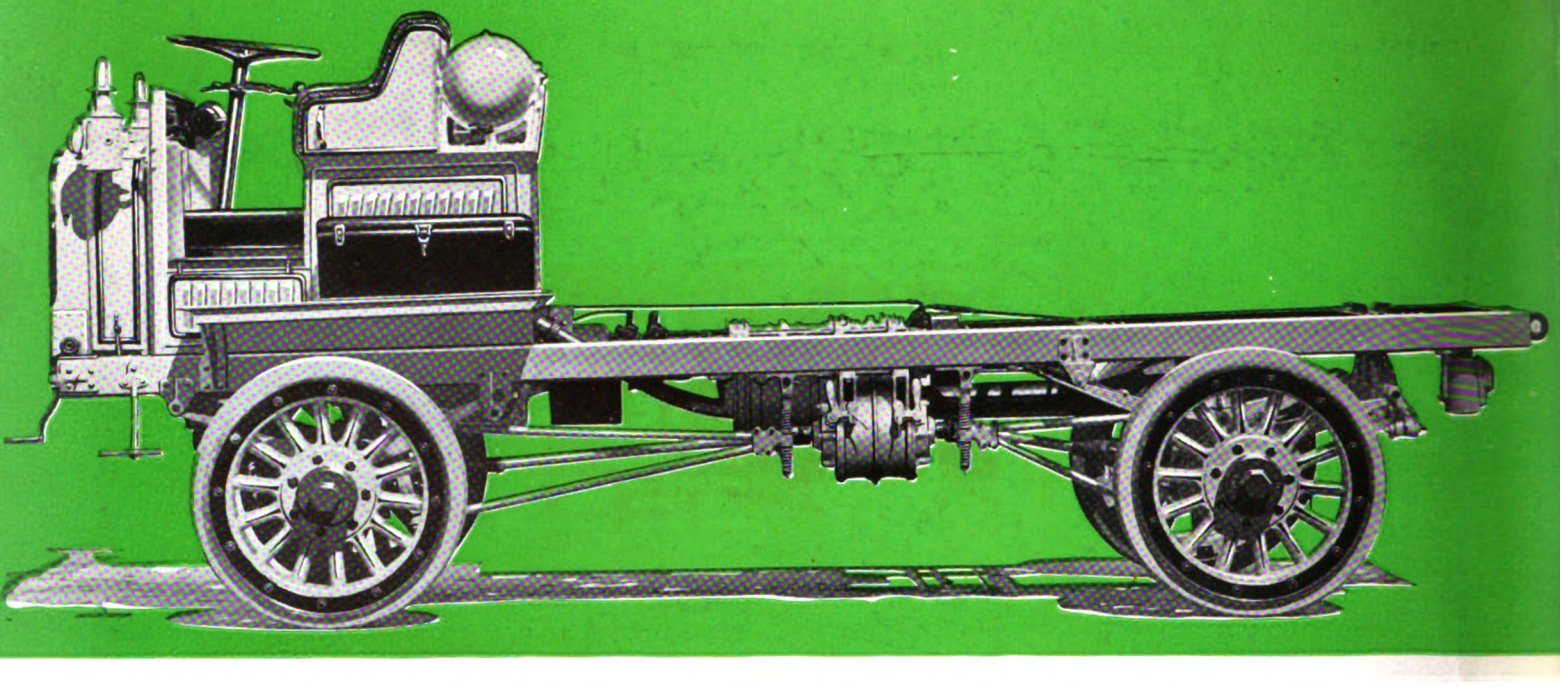
F. W. D. trucks cut tire cost from the start, not only by putting equal strain and wear on each tire, and cutting out the backlash resulting from resistance of idle wheels, but also from the fact that only four six-inch tires are used instead of six. Read the statement of the tire manufacturers' guarantee on this page.

But tire economy is not all. With every wheel a driving wheel, more power is delivered to the road wheels and utilized—a higher percentage of power per gallon of gasoline actually transmitted into service rendered.

And in addition, the equal distribution of pull, the distribution of load—45% front, 55% rear—means equalized strain, equalized wear—no abnormal strain or wear on any one part of the mechanism. As a consequence F. W. D. trucks stay on the road in active daily service, with practically no outlay for repairs.

FWD

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Specifications

Model B—Three Ton Chassis

Load Capacity—3 Ton.
Chassis Weight in Pounds—6,200 pounds.
Wheel Base—124 inches.
Tread—56 inches.
Turning Radius—24 feet, 6 inches.
Speed—14 miles per hour.
Tires—Make, optional. Front and rear, 36x6.
Wheels—Front and rear interchangeable, 36x6 S. A. E. Standard. Artillery type.
Number of Cylinders—Four. Bore, 4¼. Stroke, 5½. Offset of Cylinders, ¾-inch.
Diameter of Crank Shaft on all Bearings—2 inches.
Front and Center Crank Shaft Bearings—3½ inches long.
Connecting Rod Bearing—3½ inches.
Diameter of Wrist Pins—$1\frac{3}{16}$ inches.
Diameter of Cam Shafts—$\frac{15}{16}$-inch.
Length of Connecting Rod—12 inches.
Drop of Motor from Supporting Arms to Center of Crank Shaft—3 inches.
Length of Pistons—6 inches.
Engine Governor—On manifold, regulated and set at 1,100 revolutions.
Number of Piston Rings—3.
Control—Hand throttle and lever.
Diameter of all Valves, Intake and Exhaust—2½ inches.
Weight of Motor—580 pounds. Horse Power—A. L. A. M. rating 36.1.
Cooling System—Centrifugal pump and radiator fan driven from pump shaft.
Radiator—Perfex Type. Three point suspension.
Radiator Capacity—8 Gallons.
Ignition—High tension magneto.
Carburetor—Stromberg.
Motor Lubrication—Force feed to all bearings and combined splash system.
Gear Set—Shifting quadrant—own make. Location—on seat frame.
Number of Speeds—Three speeds forward and one reverse.
Transmission—Jaw clutch type—selective, gears always in mesh.
Gear Ratio of the Transmission—1:1 on high, 2:1 on second, 4:1 on low and 4.13:1 on reverse.
Gears—1¼ inch wide, 5 to 7 pitch.
Total Gear Reduction—8.9:1 on high, 17.80:1 second, 35.60:1 low, 36.07:1 reverse.
Sub-Transmission—Driven by silent chain on differential, which has a locking device.
Springs—Alloy Steel. Front springs 2½ inches wide, 45½ inches long, semi-elliptic, platform spring in the rear. Side springs, 2½ inches wide and 44 inches long. Cross springs, 2½ inches wide, 40½ inches long, semi-elliptic.
Shifting Levers—Steering wheel irreversible. Gear shift location—on seat frame. Emergency brake location—on seat frame.
Clutch and Foot Brake Pedal—Hele-Shaw Multiple Disc Clutch, consisting of steel and copper plates running in oil.
Gasoline Capacity—20 Gallons.
Universal Joints—Full double universal joint between clutch and transmission and one universal joint on each end of driving shafts.
Axles—Both axles full floating—front axle having patented ball and socket containing universal running constantly in oil.
Brakes—External service foot brake on transmission shaft 10 inches diameter by 3½ inches wide. Eternal emergency brake 15¼ inches diameter by 2¾ inches wide.
Bearings—All hub bearings interchangeable for all four wheels. Two bearings used to each wheel.
Equipment—Complete set of tools. Toolbox, oil cans, horn, Hub-cap, motor and magneto wrenches. Two kerosene side lamps, one kerosene tail lamp.
Painting—Chassis painted in lead color.

Dealers There is at present some extremely profitable open territory, offering a remarkable opportunity to build up a big, sound and permanent business on F. W. D. trucks. Write us for full information on discounts, terms and the details of our contract. Or, better still, come to Clintonville and talk it over.

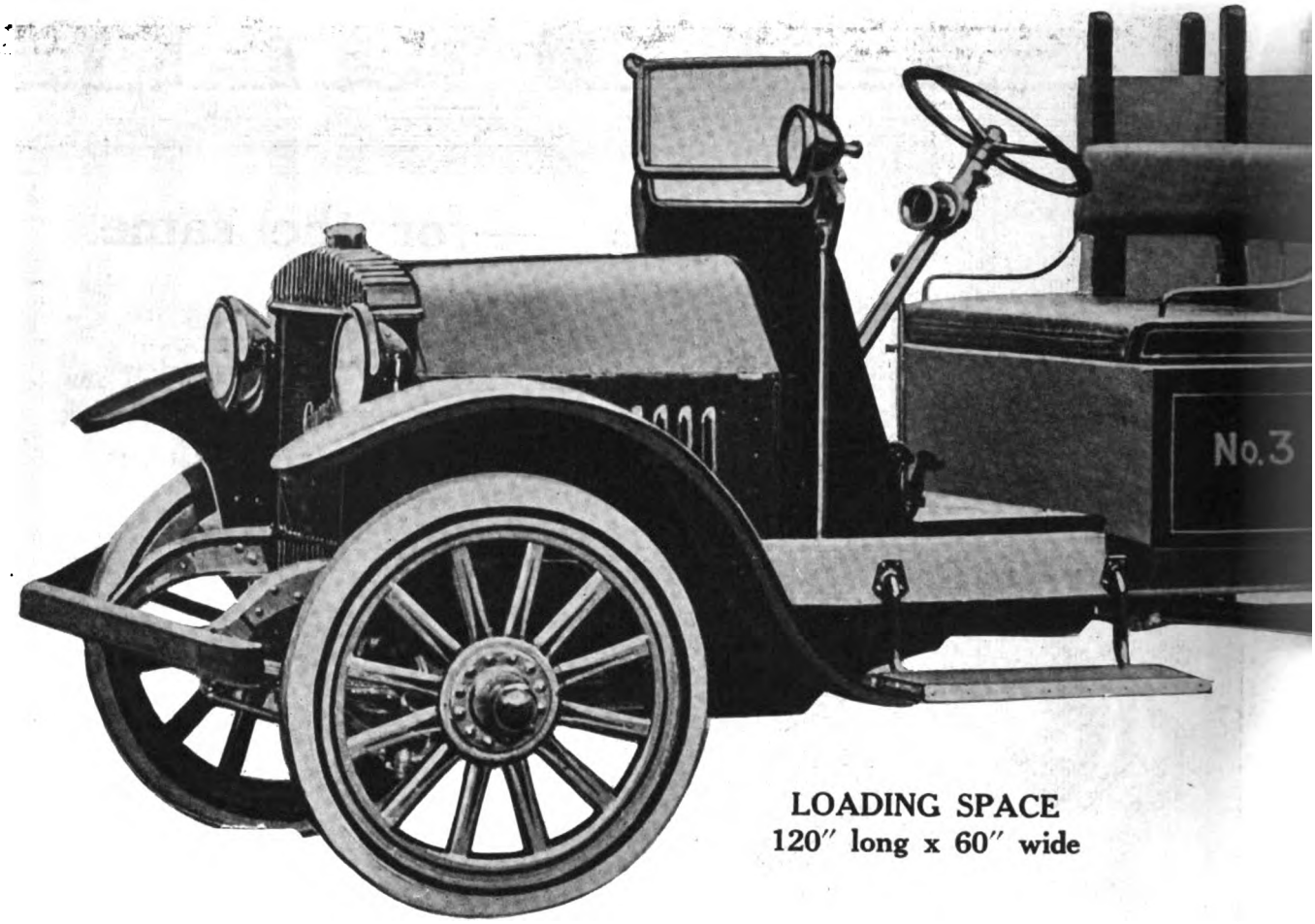
FWD

Four Wheel Drive Auto Company
Clintonville, Wisconsin

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LOADING SPACE
120″ long x 60″ wide

THE ONLY TRUCK HAVING EVERY-THING NECESSARY ON IT—

—WHEN YOU BUY IT!

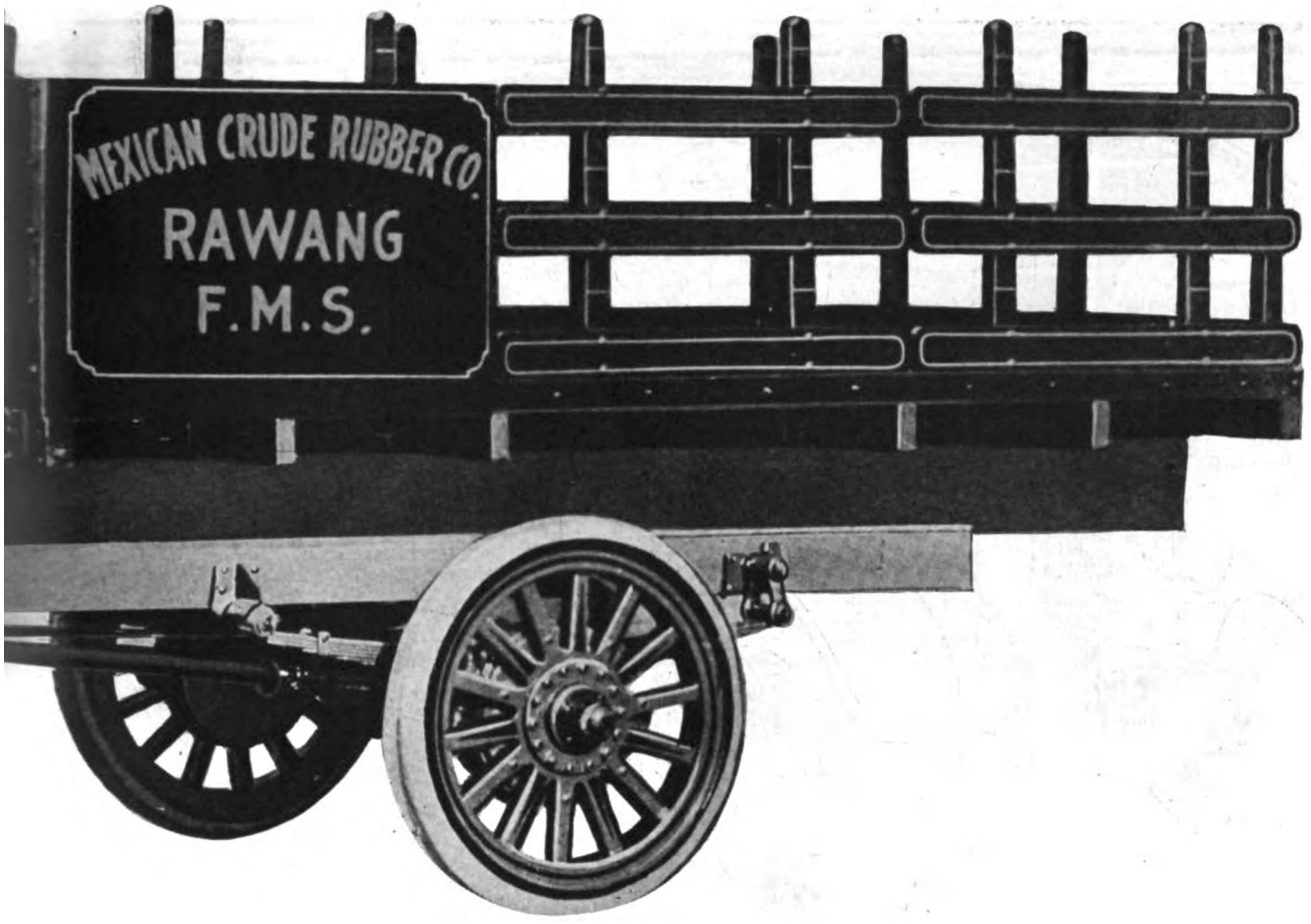
Commerce

ONE TON

MODEL ES
New Model just added to Commerce Line, New York. Type, stake job. Completely equipped.

$1390

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WHY NOT BUY A WHOLE TRUCK!

AT ONE TIME ——— FOR ONE PRICE

This complete equipment, which the Commerce carries, is absolutely necessary to the highest efficiency in trucking. No first class truck is going to be without it next year. But this year—now—the Commerce is the only truck sold with all these time-saving, cost-cutting devices, attached and included in the purchase price.

Don't be fooled about this. Investigate—find out the truth. You want to get the most for your money when you buy.

Don't lose time and money buying and attaching these things to another truck—buy a Commerce, ready to go to work immediately, with everything included and paid for.

UNEQUALLED EQUIPMENT

Three Types of Bodies—A Windshield—Remy Starting and Lighting—A Spotlight—A Bumper (integral with frame)—Large Searchlights (with dimmers)—Stewart Vacuum System—Pierce Automatic Governor.

HIGHEST QUALITY CONSTRUCTION

Continental Motor—Torbensen Internal Gear Rear Axle—Cast Tank Radiator with Removable Core—Truck Type Roller Bearing Front Axle—Unit Transmission, special truck type—Detroit Steel Products Company Springs.

These, together with special truck frame and fittings such as are usually found in a truck of 2 tons capacity, are the principal units that enter into the construction of the "Model ES" Commerce 1-ton Truck.

DEALERS ——— HERE IS YOUR CHANCE!

All over the country Commerce Dealers have a big advantage over all competitors on account of our forethought in completely equipping our trucks. This feature is going big with truck buyers. Write at once for particulars.

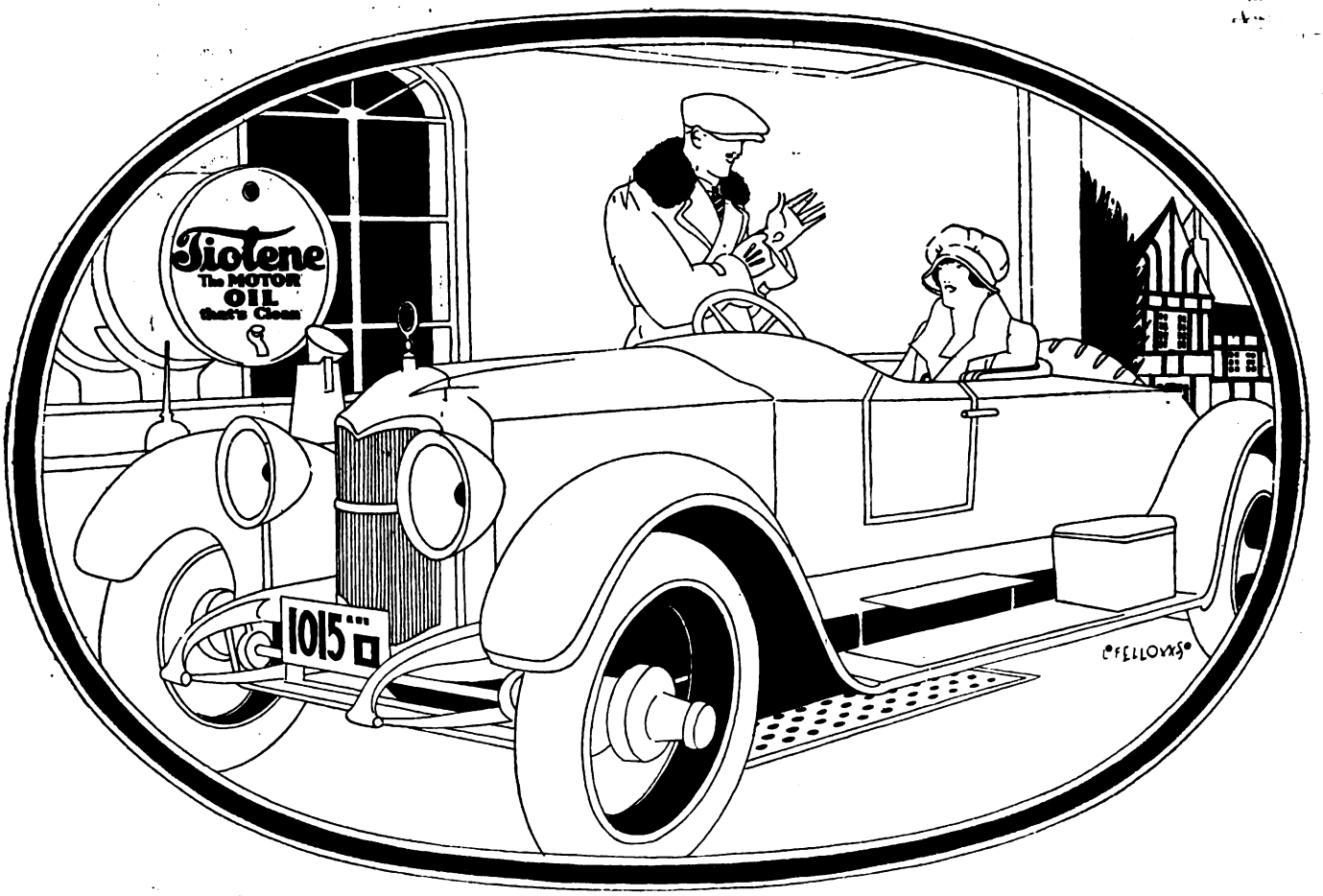
¾-Ton Model, $1075. Supplied with 3 types of bodies

Commerce Motor Car Company

DETROIT MICHIGAN

W. H. Brinkerhoff, Eastern District Manager, Belmont Avenue, Elmhurst, Long Island, N. Y.

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If you should inspect the garages of the smartest people, you would find in most cases a steel drum of

Tiolene
"The Motor Oil That's Clean

It is less expensive to buy oil in quantity—but that's aside from the point. You are assured of a uniform grade of the finest oil.

TIOLENE DISTRIBUTORS

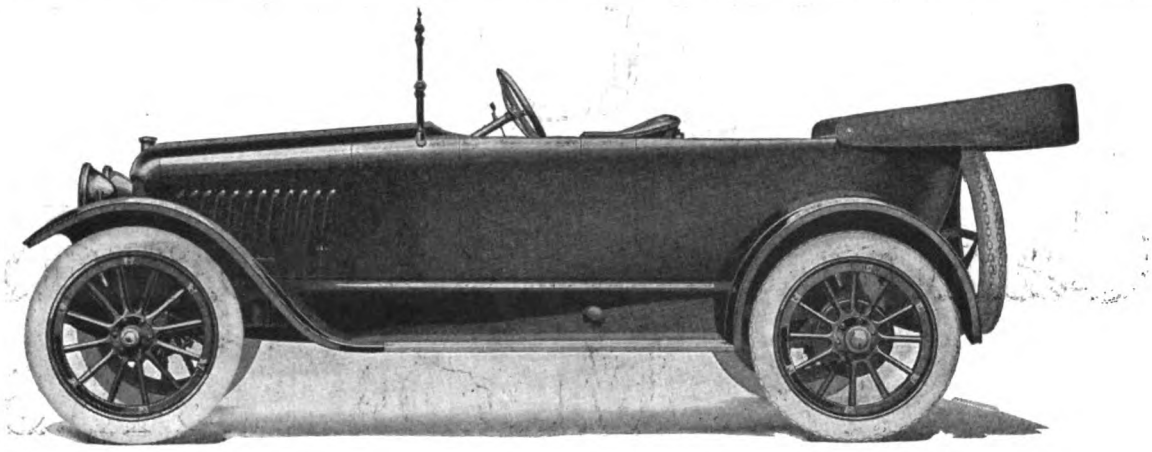
General Automobile Supply Co., New York City.
Cornplanter Refining Co., Nashua and Manchester, N. H.
Richards & Conover Hdw. Co., Kansas City, Mo.
Richards & Conover Hdw. Co., Oklahoma City, Okla.
H. Channon Company, Chicago, Ill.
Doherty Sheerin & Co., Indianapolis, Ind.
Jackson Motor Supply Co., Pittsburgh, Pa.
Robertson Hdw. & Steel Co., Portland, Ore.
Joseph Strauss Co., Inc., Buffalo, N. Y.
Treman, King & Co., Ithaca, N. Y.
Shadboldt & Boyd Iron Co., Milwaukee, Wis.
N. M. Townley, Jr., Paterson, N. J.
Detsch & Company, Portland, Ore.
R. McC. Bullington & Co., Richmond, Va.
The Banner Tire & Supply Co., Cleveland, Ohio.
The Columbia Auto Supply Co., Washington, D. C.
Pacific Implement Co., San Francisco, Cal.
Peaslee-Gaulbert Co., Inc., Louisville, Ky.
Marcus & Bailey, Denver Col.
The Automobile Equipment Co., Detroit, Mich.
Janney, Semple, Hill & Co., Minneapolis, Minn.
Cook Iron Store Co., Rochester, N. Y.
Lee, Coit, Andreesen Hdw. Co., Omaha, Neb.
Union Hardware & Metal Co., Los Angeles, Cal.
Motor Equipment Co., Philadelphia, Pa.
Fort Wayne Oil & Supply Co., Fort Wayne, Ind.
Queen Motor Company, Lancaster, Pa.

FOREIGN REPRESENTATION

Canadian Selling Co., Montreal, Que., Can.
The Chapin Company, Calgary, Alta., Can.
Santiago A. Panzardi, San Juan, Porto Rico.
W. A. Dettmann, Rocky Point Road, Arncliffe, N. S. W.
Crystal Oil Co., Barcelona, Spain; Milan, Italy.
Eddie E. Johnston, Belize, British Honduras.
Handel En. Industrie, Mij. M. Adler, Amsterdam, Holland; Dutch E. Indies.
J. Didier & Co., Lyons, France.
J. Roberts & Son, Newmarket, Auckland, New Zealand.
Leon & Company, Santo Domingo.
Slowe & Company, Shanghai, China.
Mario C. Nogueras, Havana, Cuba.
M. A. Benhayon & Company, Gibraltar and Morocco.
Gaston, Williams & Wigmore, Inc., New York City (Distributors for South America).
Wearne Bros., Ltd., Singapore, Strait Settlement.

Tiona Oil Company, Dept. M.W. 21, Binghamton, N. Y.

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Grant Six has no Selling Problem

GRANT SIX

Five-Passenger Touring Car or Three-Passenger Roadster

$875

f.o.b. Cleveland

IT would be as easy to sell 40,000 GRANT SIXES this year as the 20,000 that will be produced.

Nobody who knows anything about the GRANT SIX questions this.

On March 1, the price was advanced from $825.00 to $875.00.

Not one of the 1200 Grant dealers had the slightest misgiving about it—because every last man of them knew that a price increase of twice $50 would still leave the GRANT SIX incomparable value at the price.

Car buyers do compare, and when they find sixteen makes of fours selling at $800 to $930, they have common sense enough to realize that if these cars are fair values at their prices, which nobody disputes, a GRANT SIX at $875 is unquestionably a good buy.

Wherever the GRANT SIX has gone, it has immediately established itself as a car of remarkable performance. Its every day records of 20 miles to a gallon of gasoline, 900 miles to one gallon of oil, and its tire records of 7,000 miles and over on standard tires, have made it universally known as the economical car to run.

Mechanically the GRANT SIX dominates its price class. No other six at less than $1,000 can compare with the GRANT SIX, point by point. For instance, it is the only six in its price class which includes an overhead valve engine, full cantilever springs, full floating rear axle, cone clutch, etc.—its power rating the highest in its class.

For the car buyer, the GRANT SIX is a car of obvious, tangible value, instantly realized by comparison.

For the dealer, it is a car that is sold profitably—not peddled.

Grant Motor Car Corporation **Cleveland, Ohio**

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MOON
REG. U. S. PAT. OFF.
MOON MOTOR CAR CO.
ST. LOUIS, MO. U.S.A.

Canon City, Colorado
55 MOON CARS
Sold in 1916

That's the record of J. J. Armstrong & Son of Canon City, Colorado. Think of the hills those fifty-five cars have to climb—the power they need to stand the stress of such service.

Their popularity in Canon City is not an exceptional case, for wherever you find a Moon dealer you will find a lot of Moon Cars in service.

On the city show streets—Moon cars are notable for their double-cowled Delaunay-Belleville type of body design—usually associated with the high-priced European makes—for the exclusiveness of their real tan Spanish leather upholstery and correctness of their furnishings and appointments.

And those same cars in the stress of every-day road travel—in the mountains, through the deserts, and on all rough roads—powered with Red Seal Continental motors—equipped with parts which won't play out in a pinch, like Timken axles, Rayfield carburetors and Delco electric systems—are famed for their reliability and reserve strength.

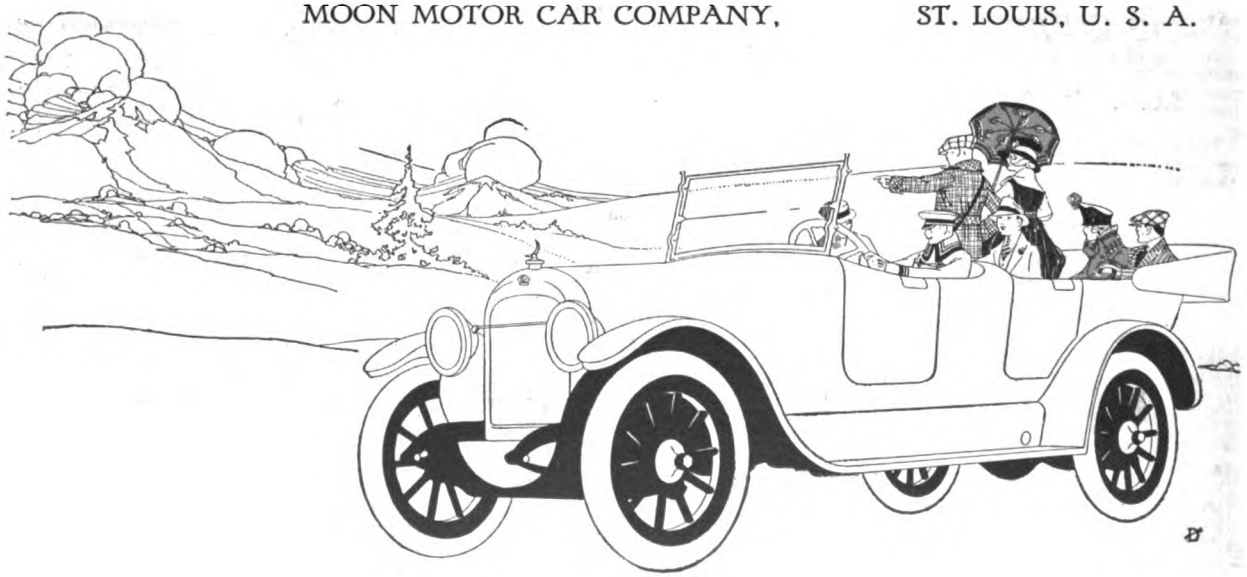
There are many territories where dealers may share in the constantly growing Moon success providing immediate action is taken. Write us about your territory today.

Six-43
(43 Horsepower, Actual Brake Test)
$1385

Fully Equipped
Prices subject to advance without notice.

Six-66
(66 Horsepower, Actual Brake Test)
$1690

MOON MOTOR CAR COMPANY, ST. LOUIS, U. S. A.



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$195 and a Ford Makes a Guaranteed Powerful Staude Mak-a-Tractor



Plowing seven inches deep in virgin sod with two-bottom, self-lifting gang plow.

Over 22,000 Contracted for in 90 Days

A Tremendous Sales Success That Has Swept the Country—Already Bringing More Profits to Dealers Than Any Other Attachment or Conversion

IN 90 days after Staude Mak-a-Tractor was announced, over 22,000 had been contracted for, with deposits on each order, and rush shipments specified in every case. This is the most sensational dealer success ever made. This famous attachment which converts any Ford into a guaranteed powerful tractor capable of doing four horses' work steadily, is the most sensational sales opportunity ever offered to you. If your territory is still open, now is the time to act. If it is not open, it would pay you to move to some open territory if you are qualified to handle Staude Mak-a-Tractor.

Staude Mak-a-Tractor combines with any Ford touring car or runabout to make a fully guaranteed tractor, guaranteed to start and satisfactorily do the work of four horses, running on high gear.

Conversion from touring car to tractor or back again is easily made in twenty minutes.

Operating cost is about one-quarter that of four horses necessary to do the same work.

Every Farm Owner a Prospect

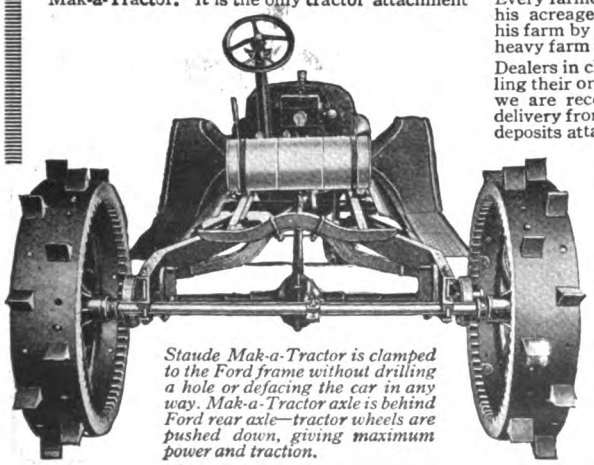
Every farm owner is an eager prospect for Staude Mak-a-Tractor. It is the only tractor attachment of proved service ability—proved wonderful economy—proved tremendous power.

Staude Mak-a-Tractor has been thoroughly tested out in every line of farm work.

It can be used with any Ford, touring car or runabout. With the famous Staude special tractor radiator and patented force feed oiling system, it not only guarantees remarkable tractor service, but also smoother running, greater efficiency, more satisfaction with the Ford used for pleasure purposes.

Every farmer, no matter how small or how large his acreage, can increase the earning power of his farm by using Staude Mak-a-Tractor to do his heavy farm work.

Dealers in closed territory are doubling and trebling their original contracts. From open territory we are receiving urgent orders for immediate delivery from individual buyers, with substantial deposits attached. As fast as dealers are closed with, we are turning these retail orders over.



Staude Mak-a-Tractor is clamped to the Ford frame without drilling a hole or defacing the car in any way. Mak-a-Tractor axle is behind Ford rear axle—tractor wheels are pushed down, giving maximum power and traction.

Tremendous Advertising Campaign

Staude Mak-a-Tractor is backed by the strongest, biggest, most fully developed co-operative sales campaign in the tractor industry. The story of this wonderful tractor attachment is being told steadily, consistently in big space in every section of the country where farming is an industry.

E. G. STAUDE MFG. CO.
2654 University Avenue
ST. PAUL, MINN.

Deliveries On Time

Our manufacturing organization is speeding up production to an almost unbelievable point. Every purchaser of a Staude Mak-a-Tractor wants immediate delivery. We are utilizing every facility to guarantee immediate delivery. Dealers are turning quicker profits than ever before — making faster sales and doing the biggest business in their history. Act now—send coupon today. If you are qualified to handle Staude Mak-a-Tractor in your territory, act now before it is too late. Same tremendous profits that other dealers are making selling Staude Mak-a-Tractor, you can make. But you cannot afford to wait another minute. Send coupon NOW.

Use This Coupon

E. G. Staude Manufacturing Company
2654 W. University Av.
St. Paul, Minn.

Dear Sirs: Please send me at once full details of your dealer proposition.

Name .....
Street .....
Town .....
State .....
Territory desired .....
Cars now handling .....

Digitized by Google

This Stops the Ford Thief

DON'T tempt highway thieves and joy-riding pirates by leaving your Ford unprotected.

Fords are stolen every day—hundreds of them, everywhere. The police are powerless to find them and catch the thieves because identification of the stolen car is almost impossible.

Fords are stolen more than any other make of cars because they are easily disposed of. Don't **invite** theft. Equip your Ford with a

Goodrich
YALE LOCK AND SWITCH

It cannot be unscrewed, unpicked or unlocked; it affords positive protection against theft. When equipped with a Goodrich Yale Lock and Switch your car is always where you left it—not in another county or state, perhaps dismantled of tires, tools, robes and valuable accessories. Your Yale key is the only one that will lock and unlock the Yale equipped Goodrich ignition switch. One turn closes up the screw heads with an impenetrable metal shutter. (See illustration.)

It gives you perpetual theft insurance at practically no cost.

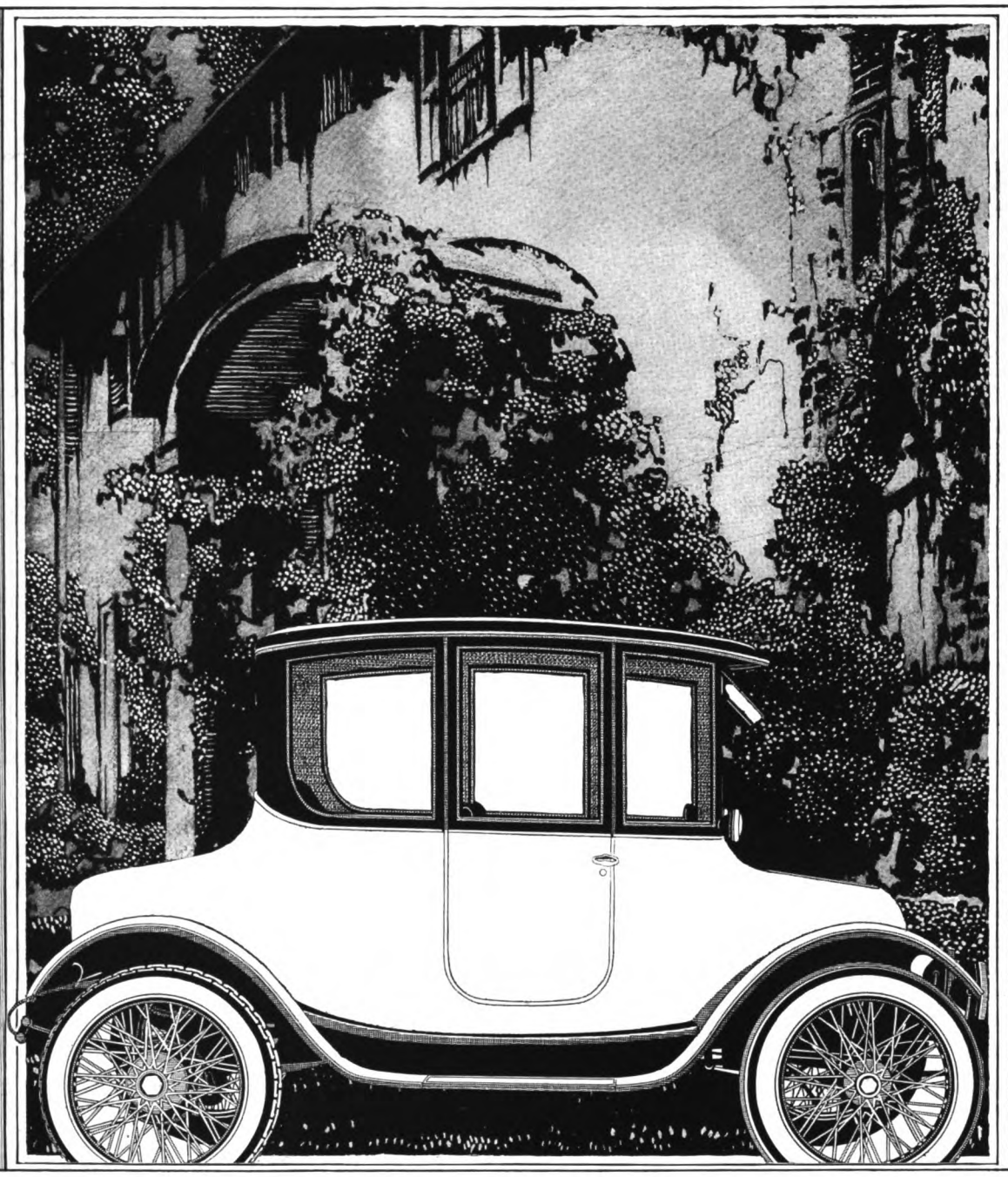
$3.25 Price Complete $4.50 in Canada

DEALERS: The many provable advantages of the Goodrich Yale Lock and Switch make it the fastest and most profitable seller in the Ford accessory field. Order from your nearest jobber or write direct.

GOODRICH-LENHART MANUFACTURING CO.
1118 Widener Building, Philadelphia, Pa.



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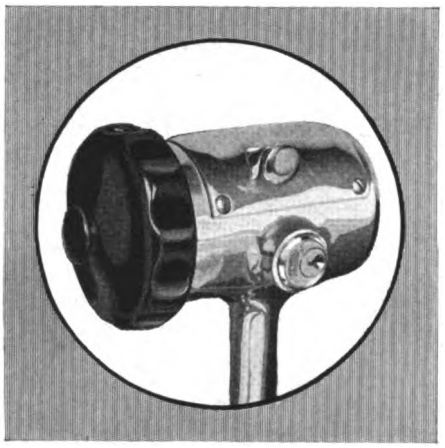


The supremacy of the Ohio Electric is established everywhere. The distinction of owning one is paralleled by the distinction of representing the Ohio Electric Car Company in any territory. The prestige of being an Ohio Electric dealer carries with it a really valuable sales influence.

The Ohio Electric Car Company has gathered data regarding each town and territory through the United States, bearing on the direct sales possibilities for the Ohio Electric. This information is, of course, available to any representative.

On the reverse side of this page there is a message of importance to dealers in territories where the Ohio Electric is not now represented.

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OHIO
MAGNETIC CONTROL

The little device illustrated above is shown merely because it is typical of Ohio Electric leadership in construction. This magnetic control operates on the same principles as the control that opens and closes the great gates in the Panama Canal, that works the elevators in the Woolworth Building and that starts and stops the New York Subway trains. It is the last word in electrical control devices and typifies the exquisite construction of every detail of the Ohio Electric—a hand-made car throughout and finished to meet individual tastes. Dealers are invited to use the coupon below for further information.

The
OHIO ELECTRIC CAR CO., TOLEDO, OHIO

Please let me have further information regarding your proposition to dealers. So far as I know there is no Ohio Electric representative in my territory.

*Name*_____ *Address*_____

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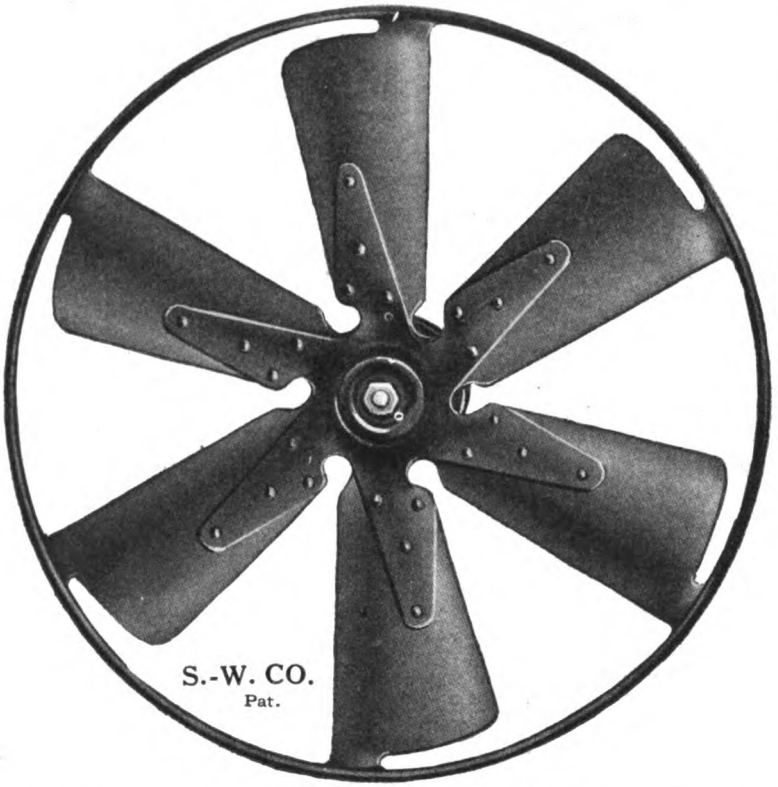
SPARTON PRODUCTS

First Choice of America's Best Cars

SAFETY FIRST SOUND SPARTON

SAFETY FIRST SOUND SPARTON

The Patented Sparton Type of Radiator Fan



In This Type Rim is Integral with Blades

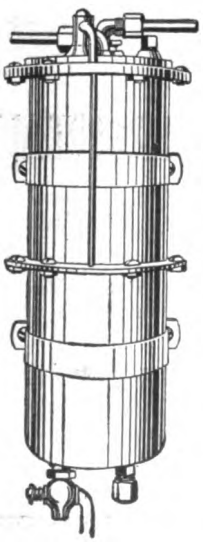
Sparton Radiator Fans are made in a factory where *Radiators* also are made. Fans and radiators are both parts of the cooling system. While Sparton Fans are sold separately, they are more efficient fans for being made by a house that also makes radiators, and that can test its fan designs *in combination* with radiators.

The House of Sparton is recognized by automobile engineers as an authority on fan and radiator matters and cooling problems are constantly submitted to us for solution or recommendation.

The patented Sparton type of fan (with rim integral with blades) is a standard part of Pierce, Locomobile, Hudson, Mercer, Oakland, Studebaker, Kissel, Cole, Haynes and Maxwell Cars, and 50 others.

We invite manufacturers to tell us their conditions and requirements and let our engineers lend them assistance. We offer the experience of 12 years in studying and mastering cooling problems of all kinds. This applies to either fans or radiators or both in combination.

Sparton Radiators are *quality standard* in common with all Sparton products. Sparton Motorhorns are today the standard in the truest sense. They have been adopted by 42 leading motor car manufacturers, who *pay a higher price* for Sparton horns because their tests *prove higher quality.*



Sparton Gasoline Vacuum System

WE ARE ABLE TO ASSURE MANUFACTURERS OF PROMPT DELIVERIES

THE SPARKS-WITHINGTON CO.

JACKSON, MICHIGAN, U. S. A.

Makers of the Sparton Motorhorns, standard equipment of 42 leading American Motor Cars

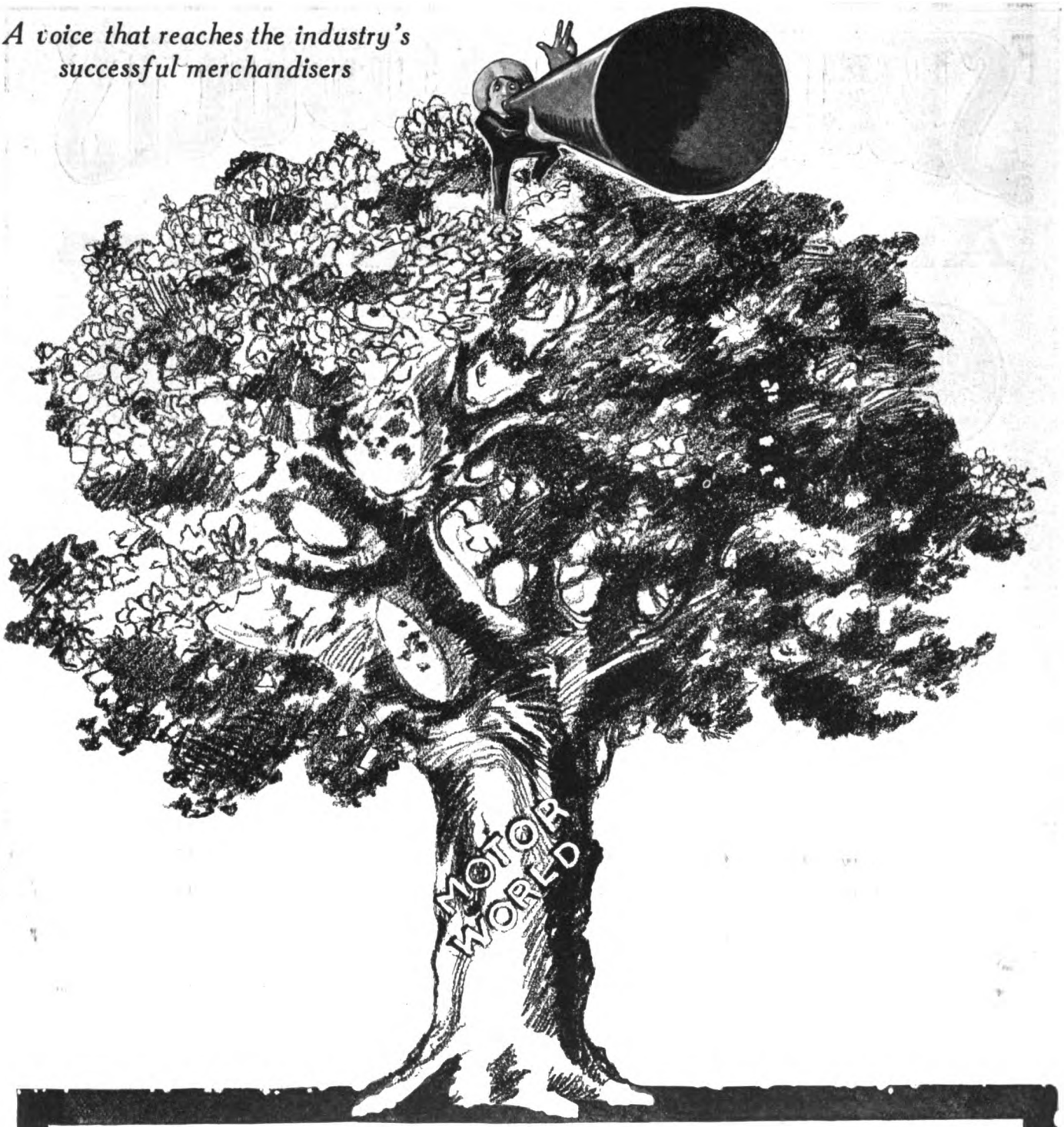
(17)



Sparton Honeycomb Radiator

Digitized by Google

A voice that reaches the industry's successful merchandisers



Get a'top the big oak tree and tell your selling story to the worth while dealers, jobbers and garage owners in every section of the country.

Motor World's forthcoming **Summer Merchandising Number** will be published April 25th. It will be a most constructively helpful business stimulant to the men who are your dealers—or who may some time be your dealers.

To promote their merchandising advantage advertisers are urged to be represented with dominant selling copy in the Big Merchandising Number.

MOTOR WORLD

New York: 239 W. 39th St.
Chicago: Mallers Bldg.

When writing advertisers please mention Motor World—It identifies you

Digitized by Google

Five Ford Models but only One Genemotor



"It starts your Ford and lights it, too"

Thousands of Genemotors are in use today starting and lighting Ford cars. They make driving a pleasure by day and safe by night.

The first practical Ford Starter was Genemotor. All the experience of former years has been utilized to make perfect the new chain drive

Genemotor

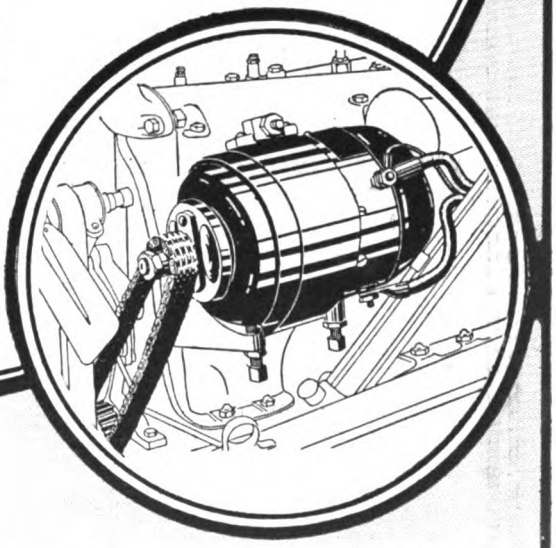
TRADE MARK

It weighs but forty pounds. Simple as can be but extremely powerful and always reliable. Easily installed—a hammer, wrench, screw-driver and pliers are all the tools needed. USL Battery Standard Equipment.

Think of the number of Ford cars running around your locality and then think of the profitable sales agent opportunity that awaits *you.*

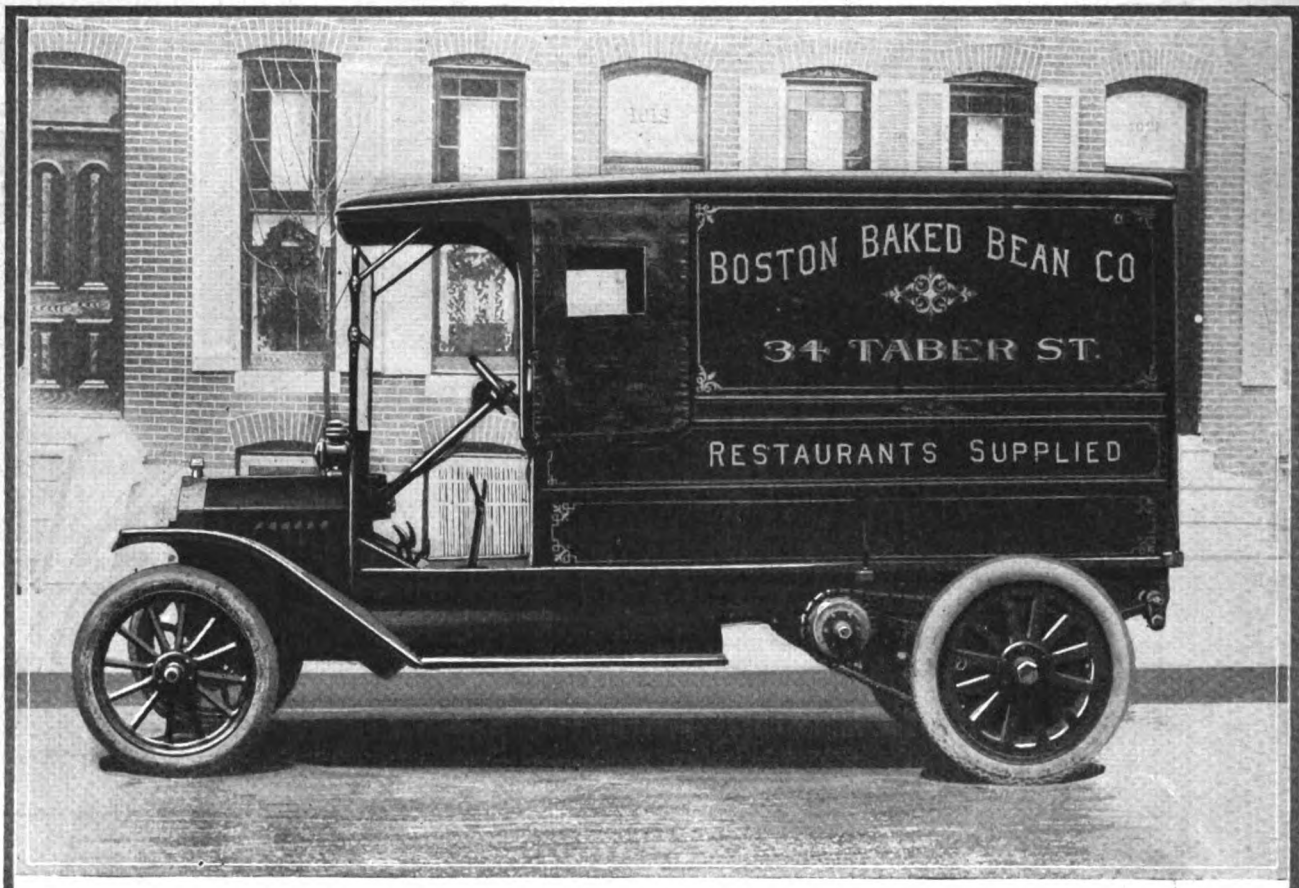
Built by General Electric Co.
Price $85.00 f.o.b. Lynn, Mass.

Sold Everywhere



A.J. Picard & Co. 1721 Broadway N.Y.

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Carrying Beans in Boston

Certainly that's the most popular job in Boston, if we may believe all reports. And yet there's a business side to it.

The delivery of Boston's famous product requires speed, reliability and economy and, because the deliveries are many to the down-town restaurants, the car that makes the deliveries must be flexible and easy to handle in congested traffic.

That's why the Boston Baked Bean Company elected

Tonford
TRADE MARK

Low Priced
Reliable
Economical

$325
F.O.B. Detroit

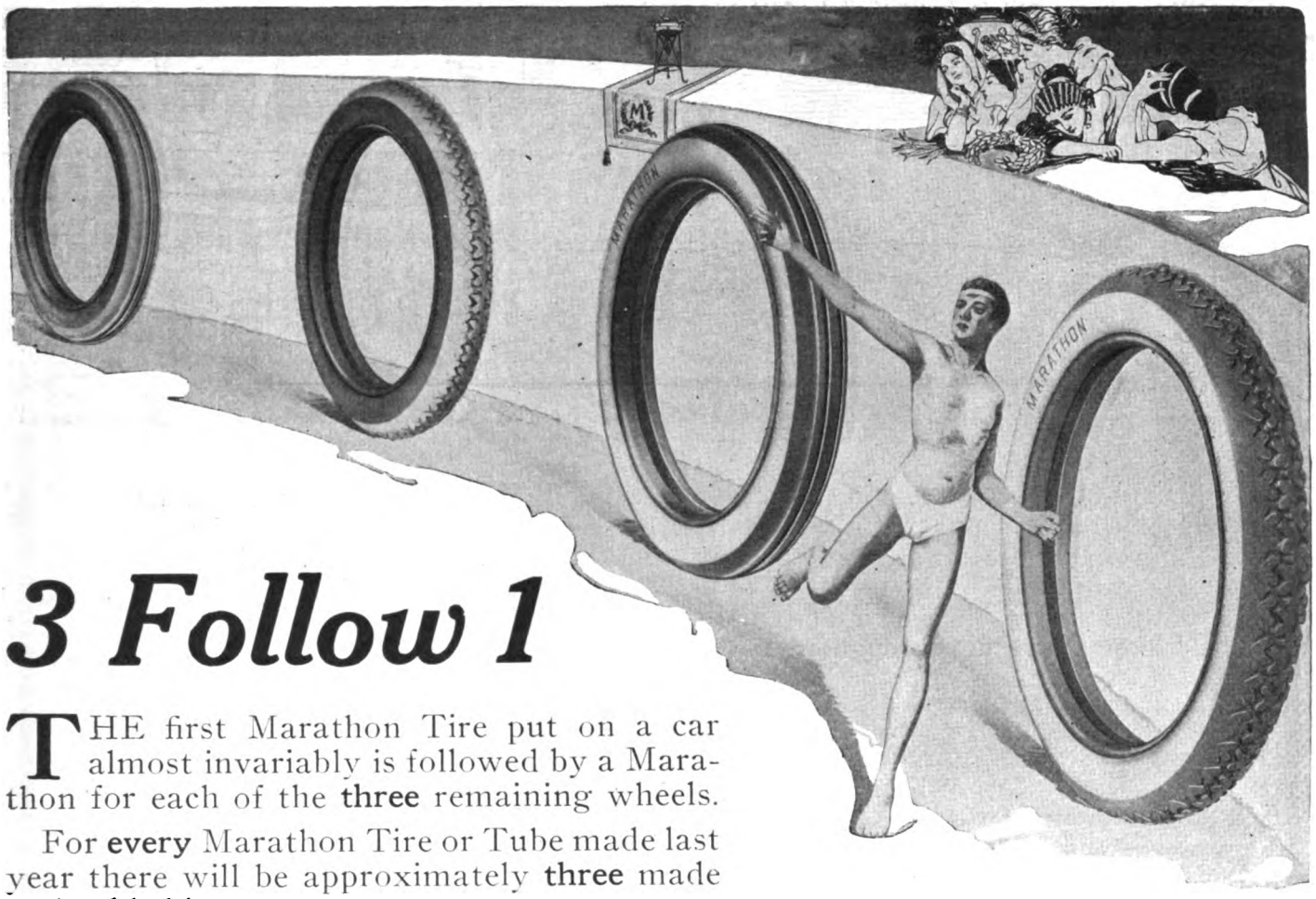
The "Tonford" has proved the most amazing success. This attachment, consisting of frame, axles, wheels, chains and sprockets is attached to Ford chassis and makes a splendid one-ton truck with a wide factor of safety for overloads. You can have any style body, and a load carrying space anywhere from 6 to 9 feet back of the driver's seat.

Those merchants and manufacturers who get down to "brass tacks" on the delivery proposition now know that there is positively no truck they can buy so cheap, so efficient, so altogether reliable and unqualifiedly economical in first cost and after cost as the "Tonford."

Dealers! We are making immediate deliveries. Tonford sales are growing daily. Tonford dealers are making money. We give you the best value and the most helpful selling plans. Write at once.

DETROIT TRUCK COMPANY, Detroit, Michigan

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3 Follow 1

THE first Marathon Tire put on a car almost invariably is followed by a Marathon for each of the **three** remaining wheels.

For **every** Marathon Tire or Tube made last year there will be approximately **three** made and sold this year.

For **every** Dealer selling Marathon Tires a year ago, there are **three** Marathon Dealers this year.

Marathons are becoming known everywhere as the best **buy,** because they are the best **built**—hand made with heaped-up Concentrated Tread, 100% effective Angle non-skid, and under that a stout, muscular tire body that is unequalled for carrying the strain of extra Mileage.

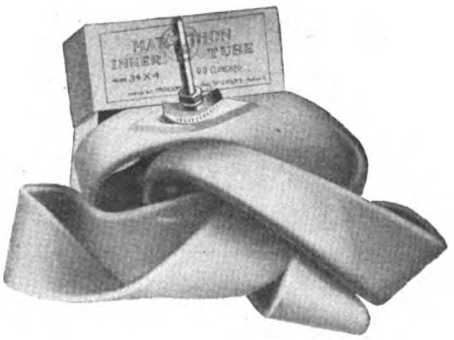
Marathon Tires are built to meet the demand for Quality—not the competition of Price.

Elastic and Regular Fabric Body; Black and White Treads; Runner and Angle Non-Skid Designs. All types covered by our 5000-Mile Guarantee.

Red and Grey Inner Tubes.

MARATHON

TIRES **TUBES**



TIRE DEALERS!

Get the "Marathon" Proposition. It means *exclusive* territory, an equitable margin of profit, price protection, strong sales support and building up a permanent tire business that is *all your own.*

THE MARATHON TIRE & RUBBER CO., CUYAHOGA FALLS, OHIO

CANADIAN PLANT: ST. CATHARINES, ONTARIO

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AKRON-WILLIAMS

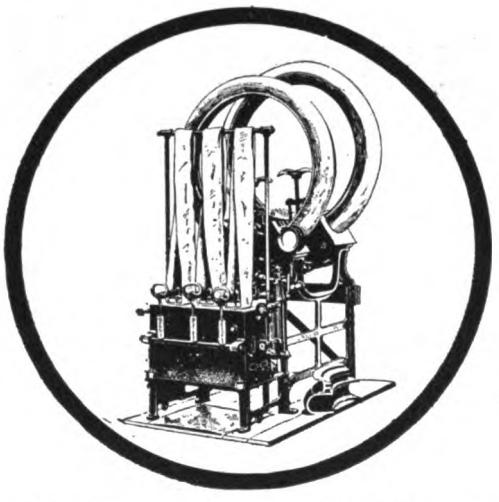
Tire Repair Equipment



Developed by the Leading Tire Companies

Each and every piece of Akron-Williams Tire Repair Equipment has been designed and brought to perfection with the active aid and co-operation of experts employed by the Akron Tire Factories—the largest in the world. These engineers work side by side with us to develop the most efficient Tire Repair Outfits, **firstly,** to use in their own factories, and, **secondly,** to sell and recommend to their dealers and agents throughout the country.

As a result, Akron-Williams Tire Repair Equipment is always the latest and most improved. The Repair Outfit we offer you is the same in every way as used, sold and recommended by more than 60 leading Tire Manufacturers.



Akron-Williams Outfits are built to make the most efficient and lasting tire repair in the shortest possible time—the kind of work that builds trade and profits. No essential tools are lacking. Nothing needless is included.

Start Right—With Akron-Williams Equipment

More than three million cars are now in use; over a hundred million dollars is being spent this year for tire repairs. Tire repairing offers wonderful opportunities either as a separate business or a department of a garage or supply business. A few hundred dollars will start you. BUT—*your success depends absolutely upon the equipment you choose.* Start right—don't experiment—use the equipment all leading tire companies use, recommend and sell.

NOTE: **We do not take any other outfits in exchange. Write for Free Booklet "Your Share of the 100 Million Dollars."**

"Everything for the Tire Repairman"

Just out—our new catalog illustrating full and complete line of tire repair machinery, equipment, tools, etc., for every size shop. Brimful of new time and labor-saving devices. Write for it today.

The Williams Foundry & Machine Co.

45 Cherry Street **Akron, Ohio**

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Spring Is Here

Dealers: Stock Up Now!

Over four million cars will soon take to the road—and every last car will need auto parts and accessories! Mr. Dealer, are you prepared to *capture* your share of this auto supply business? Are you ready to *sell* and *serve* motorists in your locality as well as the *throngs* of tourists who will criss-cross and zig-zag all over these United States?

This year will see more touring than ever before because Americans are just learning to enjoy the *wonders* of their own country. *Greater usage* of cars will mean *greater repairs*—greater sales! Mr. Dealer, why not decide now to make the *big profits* other *live-wire* garage men are *salting down* from the sale of auto supplies and accessories!

"SNAPS" WILL BOOM YOUR SALES

If you want to establish yourself as the *foremost* automobile supply dealer in your locality buy your parts and accessories *by mail* from "SNAPS." "SNAPS" is known to 30,000 successful dealers as *"The National Bargain Directory of Auto Supplies."*

We, the Service Motor Supply Company, will be your Chicago partner. No need for you to carry a tremendous stock. Our *six-hour service* means that you can order auto supplies as you need them. Remember, "SNAPS" is issued fresh every month, filled with a thousand items of *highest quality merchandise* at *lowest current prices.*

"SNAPS" PRICES UNDERCUT ALL

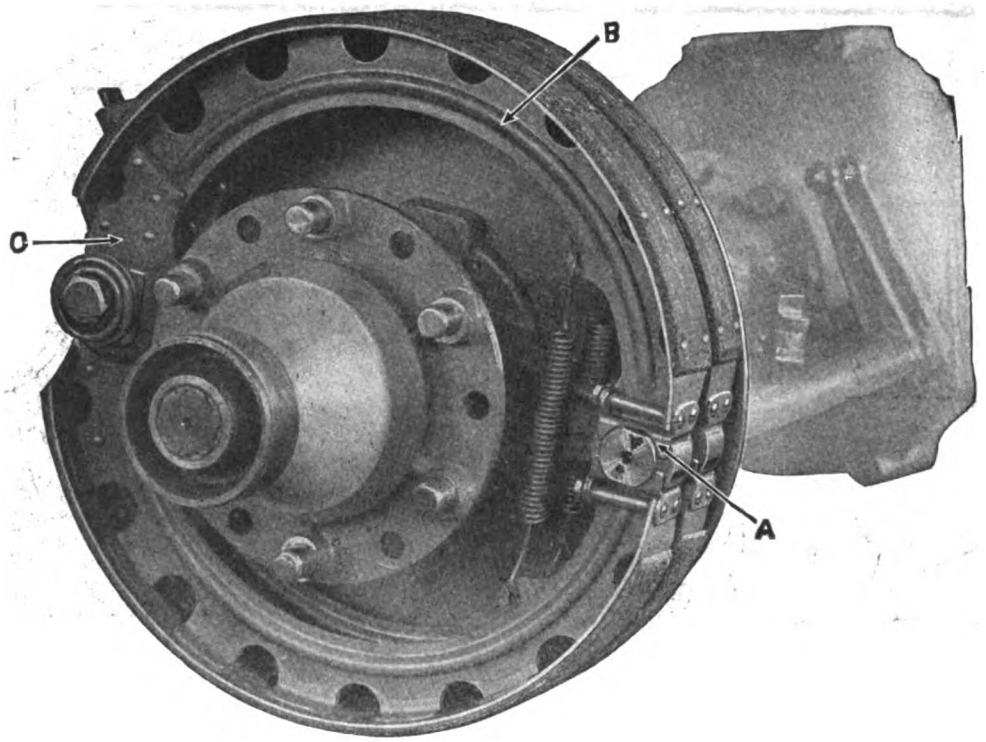
Our tremendous purchases for spot cash gives us a head start which we improve by selling exclusively *by mail for cash* and *wholesale only.* We are content with a *small margin of profit* because we count on a *tremendous* volume of sales—already these sales amount to $5,000,000 a year. We sell *wholesale only.* We employ a force of fifty people to devote all their time and attention to safe-guarding our dealers through our T. D. (Turn-Down) Department. Absolutely no one but a *legitimate dealer* who buys to re-sell, can buy from us—by mail or in our display rooms in Chicago.

Our Money-Back Guarantee

We guarantee complete satisfaction with every sale or we will send your money back without *quibble or question.* Write for your copy of "SNAPS" today and use your business letterhead or send in your business card so we can tell you are a *legitimate* dealer. Don't wait—take this step toward *new and bigger profits* now. Send for "SNAPS." 9

SERVICE MOTOR SUPPLY Co. 1523-25-27-29-31 MICHIGAN AVE. CHICAGO, U.S.A.

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Again Speaking of Brakes—

American Axles

Made by the Pioneer Axle Builders of America

Licensed under The Kardo Company Patents

A. That part of brake shoe coming into contact with rectangular brake block is hardened and replacable.

B. The main part of brake shoes is pressed from sheet steel, materially decreasing the weight under that of cast shoes ordinarily used.

C. The centering and aligning parts of brake shoes are machined from drop forged steel.

First to introduce pressed steel into motor axles; **First** in the successive improvements that have counted most in axle manuacture; naturally, "American" Axles are **First** in the refinements that make for Less Weight and Greater Efficiency.

The American Ball-Bearing Company

Cleveland, Ohio

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SUNDERMAN
Vacuum Carburetor

Take All Hills on High

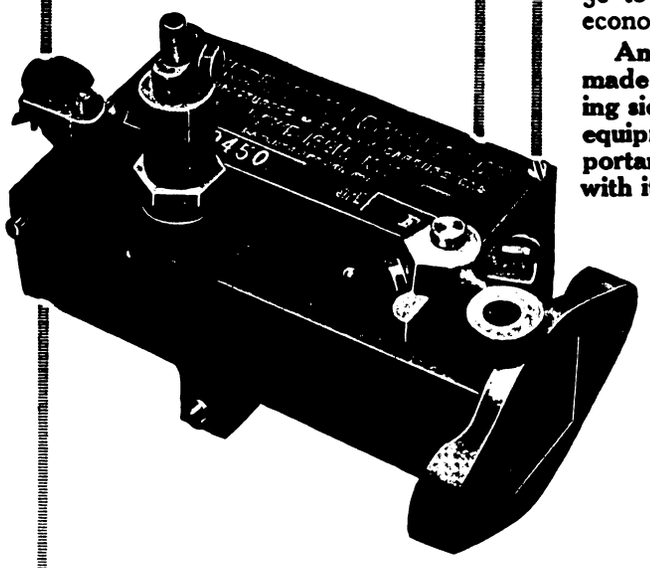
$5

F. O. B. Newburgh

$6.50 for other than Ford or Metz

Car Owners:

Start the season right—with a SUNDERMAN on your car.



Shifting gears to take a hill is a humiliating confession of motor inefficiency that a car owner hates to make—but the vast majority must do it. Because hill-climbing demands extra power that engines equipped with ordinary carburetors seldom have in reserve.

The Sunderman Vacuum Carburetor finds one of its greatest uses here because its mixing principle gives any motor an excess of great-hearted, lusty-lunged power that flattens the hills before it.

It gets more power out of your gasoline—because it breaks the particles up so fine that the spark in the combustion chamber explodes the last atom, releasing and *using* the 30 to 50% of gasoline that ordinary carburetors waste.

The Sunderman Mixture Has the PUNCH

Remember, our chief claim is based on the fineness of the Sunderman mixture. It produces quick, sure and thorough ignition—with a driving *punch*.

Economy, of course, is a consequence. Not alone the economy of dollars and cents that comes from using 30 to 50% less gasoline, but the bigger and broader economies that result from a "sweet running" motor.

Another point: The Sunderman Carburetor has made its great record on replacement business—helping sick and lazy motors to do their work. As factory equipment it will set a new standard and add an important selling point to the finest car. Start it even with its best competitor and then watch its dust!

Dealers: Our 1917 advertising and selling plans make our territorial proposition especially attractive.

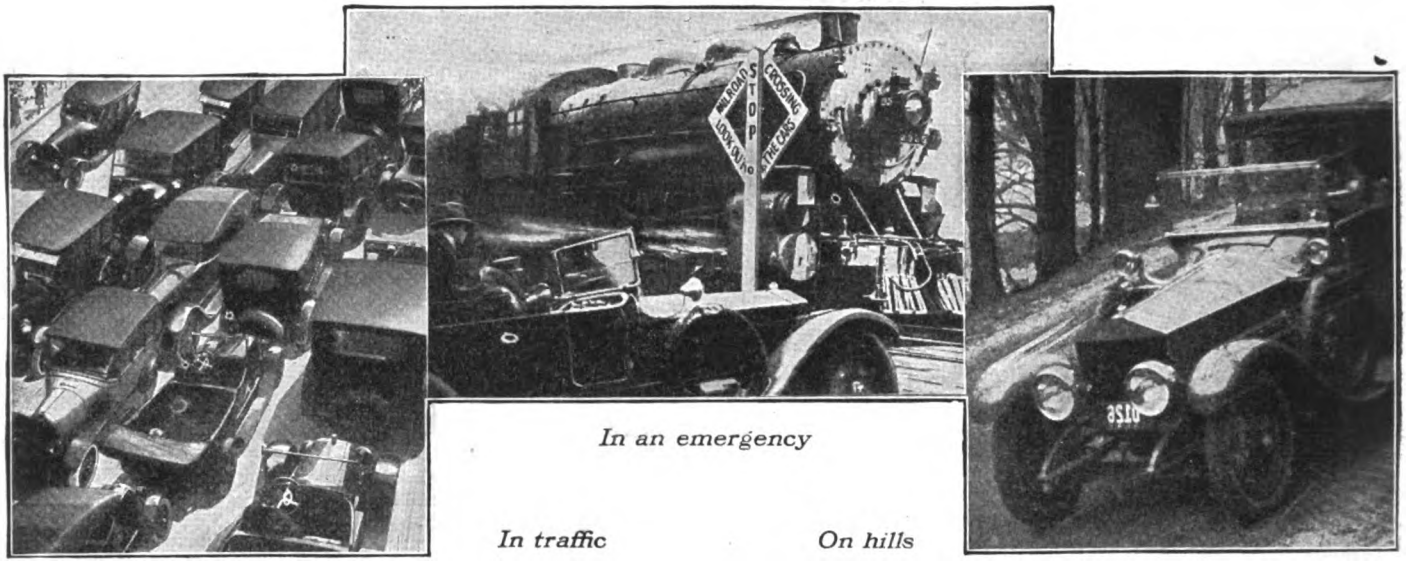
A postal is all that is necessary to start it your way.

Sunderman Corporation

9 Chambers St. Newburgh, N. Y.

Western Sales Office, 403 Kresge Bldg., Detroit

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In an emergency

In traffic

On hills

If your brakes grab or slip—

Learn how leading car-makers guard against it

Your life depends on the efficiency of your brake lining. Grabbing or slipping brakes menace your safety.

In traffic, in an emergency, on hills, your brakes *must* work promptly and smoothly.

Realizing the importance of good brake lining, leading car manufacturers and leading axle makers select for their cars and axles the brake lining that won't grab or slip—Thermoid Brake Lining.

These cars use Thermoid Brake Lining:

Pierce Arrow	*Pathfinder*	*Moon*
Peerless	*Cadillac*	*Ames*
Marmon	*Cole*	*Atlas*
Haynes	*Apperson*	*Gersix Truck*
Studebaker	*Premier*	*Republic Truck*
Kissel	*Chalmers*	*Fulton Truck*
Autocar	*White*	*Columbia Truck*
Briscoe	*Auburn*	*Denby Truck*
Lippard-Stewart Motor Truck	*National*	*Bethlehem Truck*
Atlas Truck	*Bessemer Truck*	*Service Truck*
King	*Sayers & Scovill*	*Metz*
Stephens	*Pilot*	*Hudson*
Patterson	*Hudford Unit*	*Lexington-Howard*
Superior Truck	*Sun*	*Denmo Truck*
Davis	*Empire*	
Union Truck	*Kline Kar*	
	Rauch & Lang	

These axles use Thermoid Brake Lining:

Timken-Detroit	*Sheldon*	*Hess*
Columbia	*Torbensen*	*Celfor*
Peru	*Russel*	*American*
	Empire	

Why *experts* selected Thermoid Brake Lining

These car-makers and their engineers select Thermoid Brake Lining because they find, by scientific tests, that it gives consistently efficient SERVICE. They find its "co-efficient of friction" is ideal for a brake lining.

This means its surface is so made that brakes equipped with Thermoid Brake Lining cannot grab or slip.

Three tests that prove Thermoid Brake Lining's worth

Thermoid Brake Lining proves its superiority in passing all three drastic tests by which brake lining efficiency is determined.

Co-efficient of friction test
Absorption test
Durability test

Scientific construction of Thermoid Brake Lining

The reason Thermoid Brake Lining has the ideal co-efficient of friction, is impervious to moisture, and is durable, lies in its scientific construction. In its process of manufacture, it has three exclusive features:

1. *It has 40% more material by actual weight than any woven brake lining*

This means longer service—better service. Thermoid is 40% heavier than any woven brake lining on the market. That is why it is better fitted to stand the responsibilities placed on it.

2. *It is Grapnalized*

Thermoid brake lining is impregnated throughout with Grapnal. This exclusive process makes it impervious to gasoline, oil, water, dust, etc. No other brake lining is Grapnalized cr can be. That is why ordinary brake lining goes to pieces rapidly.

3. *It is hydraulic compressed*

Powerful hydraulic presses compress Thermoid into a solid mass. This makes it far tougher and stronger than woven lining. It makes the surface ideal for brake lining; it can't grab and it can't slip. The "co-efficient of friction" is just right.

National Advertising

This advertisement is being run in the Saturday Evening Post, Collier's Weekly, Literary Digest, Life, Christian Herald, and Country Gentleman—circulation totaling more than 4,000,000. We propose to increase your brake lining business by educating car owners to ask for Thermoid when they buy brake lining.

Our guarantee—

Thermoid will make good or WE WILL.

Thermoid Rubber Company

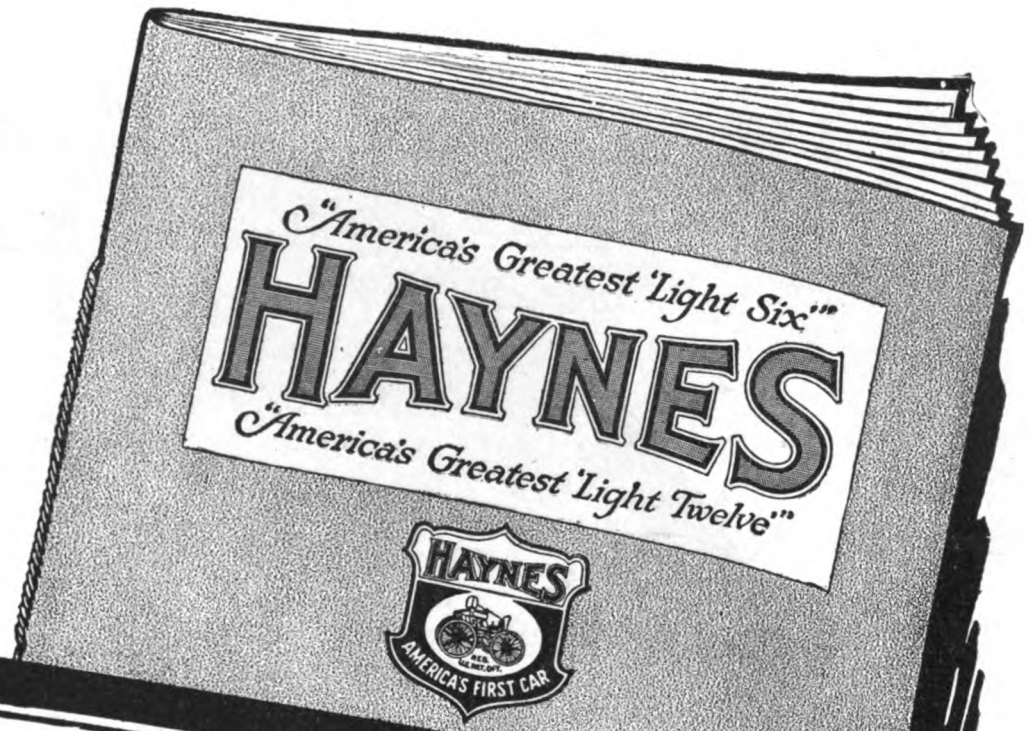
Factory and Main Offices TRENTON, N. J.

Branches: New York, Chicago, San Francisco, Indianapolis, Detroit, Los Angeles, Philadelphia, Pittsburgh, Boston, London, Berlin, Paris.



Digitized by Google

Says a prominent dealer: "Every day I receive rafts of printed matter. But when this book came it interested me so intensely that right then and there, in the midst of a busy day, I took a half-hour off and read it. And it was time well spent."



Final Call!—Only 117 copies remain at time of going to press!



We had 2,000 copies printed. Two weeks ago we had 473 left. Today only 117. Automobile dealers vote this *"the most remarkable book ever published to prove to a dealer why he should take on a car."*

Rush *your* request. Use coupon. *To make sure, wire! Contents:*

—*"The Automobile Outlook for 1917"* by A. G. Seiberling.

—*"Haynes—the finished product of a Quarter Century of Good Car Building"* by D. L. Watson.

—*"Haynes Backing its dealers by Powerful Advertising."* by R. T. Gray.

—*"Good Advertising and Powerful Advertising."* by H. R. Perry.

—24 full-sized reproductions—in colors and black and white—of big, handsome Haynes ads appearing over 10,000,000 times a month in 30 prominent periodicals besides hundreds of newspapers.

Due to a 100% greater output for 1917 new territories are now open. Haynes "Light Six" $1595—"Light Twelve" $2095. Rush the coupon.

The Haynes Automobile Co.
70 South Main St.
Kokomo, Indiana

FREE—to Automobile Dealers ONLY
—to others price $1.00 in advance

The Haynes Automobile Co.
70 South Main St., Kokomo, Ind.
Mail me a copy of your 24-page book.

I now sell the following cars:.....
.....
.....

Firm Name.....
City..... State.....
Personal Signature.....

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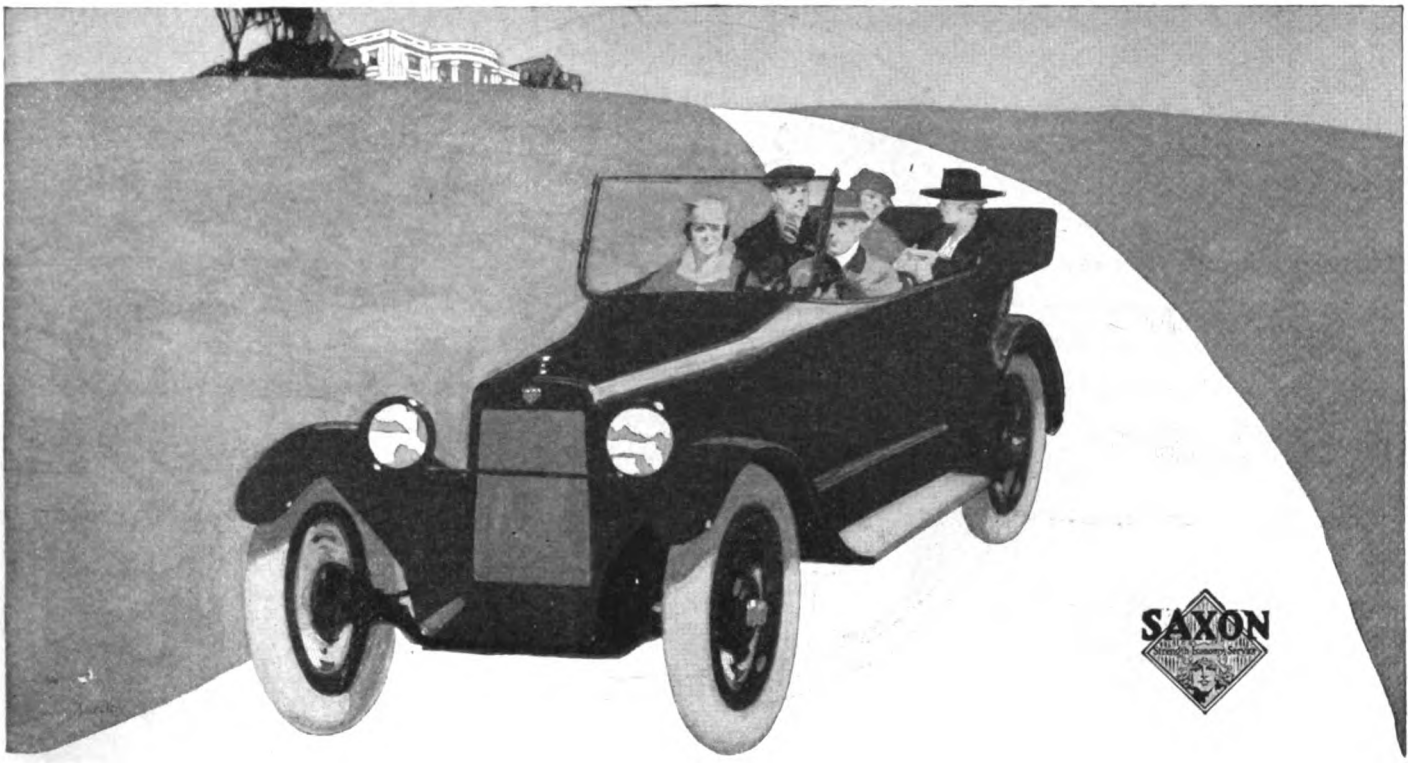
Symbols of Security

WHEN the motoring world wants freedom from every form of tire trouble it looks with confidence to the Firestone Non-Skid Tire, the Colossus of Roads. There is confidence in its safe, sure hold on any road, in any season. There is confidence in the resilient strength and mileage values in every Firestone Tire. Above all, there is confidence in the quality on which the organization was built and in the Firestone name behind it, a symbol of security the world over.

FIRESTONE TIRE & RUBBER CO., AKRON, O.
Branches and Dealers Everywhere

Firestone

Digitized by Google



Consider This Certain and Positive Proof of Saxon "Six" Supremacy

First of all turn your attention to the Saxon "Six" motor.

Compare it with the car of less than six cylinders that stands highest in your estimation.

Though that "less-than-six" may be developed to the full limit of its possibilities you still will find lapses between its power impulses.

These lapses you know produce the vibration and friction that are the bane of motor life. And they exert considerable injurious effect upon the parts, too.

Gear-shifting becomes more and more frequently a necessity. Acceleration slows up and pulling power lessens.

Finally we see them revealed in growing repair and replacement bills. And shortly the car has reached the end of its usefulness long before it should.

On the other hand, the Saxon motor, with its six cylinders, develops a continuous flow of power. Vibration has been reduced to a minimum. Uniform torque, the ambition of all motor designers, is attained.

Briefly explained, in the "less-than-six" you find a **less number** of explosions at any given speed, and each explosion **more severe.**

In the "Six" you get far **more** explosions and each **less severe** in its application to the bearings.

Take for example a certain well-known car of less than six cylinders, tested under the same prevailing conditions as Saxon "Six."

At a speed of 20 miles per hour, the Saxon "Six" motor developed 98% more impulses per minute than did the "less-than-six."

This 98% greater percentage of impulses is vitally significant.

And its significance is concretely expressed in the fact that when this "less-than-six" and Saxon "Six" were tested for acceleration, Saxon "Six" revealed 22% faster pick-up.

Nor is it in acceleration alone that this smoother power-flow gives the advantage to Saxon "Six."

Its value is revealed similarly in greater pulling power and flexibility.

In every phase of performance Saxon "Six" must be considered supreme among cars costing less than $1200.

Under the most drastic and gruelling conditions of public and private tests it has earned top place.

And further satisfaction accrues to you from the knowledge that Saxon "Six" wastes not a particle of gasoline.

Its average established by 206 stock model Saxon "Sixes" in a 300-mile non-stop run is 23.5 miles per gallon.

Saxon "Six" is $865; "Six" Sedan, $1250 "Four" Roadster, $495; f.o.b. Detroit. Canadian prices: "Six" Tour car, $1175; "Six" Sedan, $1675; "Four" Roadster, $665. Price of special export models, "Six," $915; "Four," $495; f.o.b. Detroit. (081)

SAXON "SIX"

A BIG TOURING CAR FOR FIVE PEOPLE

SAXON MOTOR CAR CORPORATION, DETROIT

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JOHNSON CARBURETOR

a Carburetor of Distinctive Difference in Every Requirement



JOHNSON COMPANY

Makers of Superfine Instruments of Carburetion

DETROIT MICHIGAN

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Take out an insurance policy against worn, noisy gears in your transmission and differential

Nothing makes a car "second-hand" quicker than noisy gears—the result of wear—usually because of improper lubrication.

Nothing gives more satisfaction than a quiet, noiseless car—no grinding in the gear-case on "second"—no humming in the differential.

A few pounds of GEAREASE protection—in time—will save much money for replacing worn out gears.

If you have not had your gears packed lately, remove the grease or oil and fill gear-case and differential afresh with this super-lubricant, which is being recommended by motor car manufacturers because it does everything a gear lubricant should do—and doesn't break down under the hardest kind of service. Silent gears bear witness to the wonderful lubricating qualities of this super-lubricant.



Sticks to the gears—GEAREASE is remarkably adhesive and cohesive. It follows the gears continuously—never lets metal touch metal.

Doesn't cake on the walls—GEAREASE sticks to the gears—doesn't splash.

Doesn't solidify in cold weather—GEAREASE flows freely and maintains uniform consistency down below zero—lubricates properly in coldest weather.

Unaffected by heat—On the hottest day, under the most strenuous service, GEAREASE does not get thin and run out through the axle.

Satisfaction Guaranteed or Money Back

GEAREASE

The perfect lubricant for gear-case and differentials.

SWAN & FINCH CO.
Quality lubricants since 1853

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Rainier WORM-DRIVE

Built by the Pioneers of

The $5000 Truck's Little Brother

Compare these features with ordinary light delivery cars:

Timken-David Brown worm-driven rear axle.

Timken front axle, 2½-in. section.

4½-in. pressed-steel frame.

115 in. wheel-base.

Hotchkiss drive.

33-in. x 4-in. tires, demountable rims.

Left-hand drive with center control.

Straight line drive, motor to rear axle.

New double-safety spring-shackle.

10-in. dry disc clutch.

3 speeds, selective transmission.

Heavy truck steering-gear with 18-in. wheel.

Special Rainier Truck Motor, 3¼ in. x 4½ in., with magneto ignition.

Highest efficiency and economy; 18 to 20 miles per gallon of gasoline.

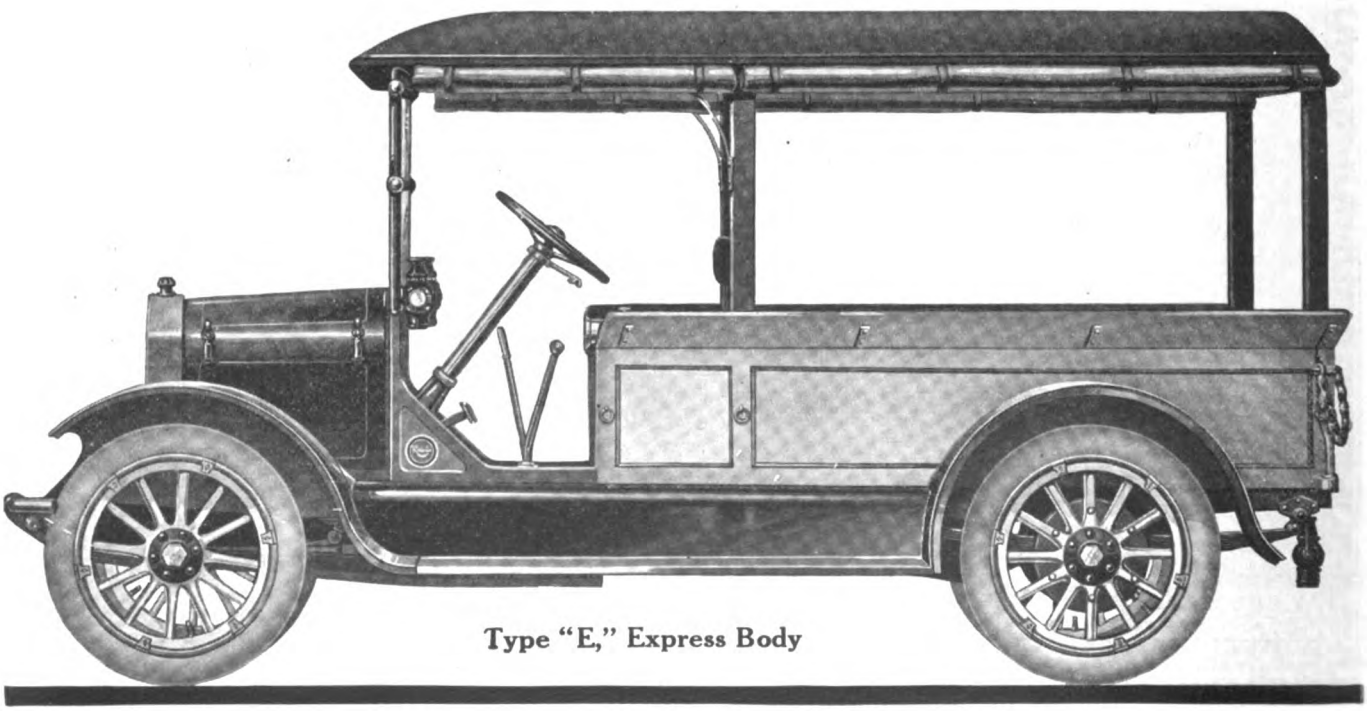
The Rainier Half-Ton Worm-Drive Truck is actually a little brother of the big, successful, heavy truck. It has all the family characteristics and build, differing only in size. In its make-up will be found the same Timken Worm-Drive, Timken front axle, deep frame, long wheel-base, Hotchkiss drive and other features that have made American heavy trucks the standard of the world.

The average delivery car is built *upwards* from a pleasure-car chassis. It usually is an out-and-out converted job, or one made of pleasure chassis parts, strengthened a bit here and there and sold under a truck name-plate.

The Rainier is built *downwards* from the best type of heavy truck—in design, construction and materials it is a small edition of the $5000 worm-driven, heavy-duty trucks that stand at the head of their profession. The chassis, its parts and units, are made for truck purposes, not for pleasure purposes.

The Rainier is a truck from bumper to tail-lamp—built to carry *dead* weight, not *live* weight. Built to stand a 50% overload when the occasion arises.

And the price is $875 for the chassis. Various standard body styles from $100 to $125. Starting and lighting, $85 extra.



Type "E," Express Body

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HALF-TON TRUCK

$875

America's Motor-Truck Industry

CHASSIS *f.o.b.* N.Y.

The Dealer's Opportunity

Notice the many light commercial vehicles already in use in your city.

Examine some of them and see if you, with your knowledge and experience, honestly believe they will stand up under the strain of hard business usage. Notice the made-overs, the converted cars, the makeshifts which the public is buying, and then stop and think of the market for a real, high-grade light truck, sold at a little higher price, but built like, and as good as, the best-known American heavy trucks.

Study the Rainier specifications. Realize that, although sold at $875, it has Timken Worm-Drive, Timken front axle, 4½-in. frame, 115-in. wheel base, Hotchkiss drive, 33-in. x 4-in. tires and other features not heretofore found except in trucks selling around $1500.

Find out what other half-ton trucks there are and study their make-up also. Then you'll appreciate that this is the most valuable dealer opportunity available today, and that it behooves you to get busy immediately.

Of course, large cities like Chicago, Boston, San Francisco, Los Angeles, Denver, Salt Lake City, Seattle, Birmingham and Baltimore are closed, as they were snapped up by the best dealers as soon as our initial announcement appeared last Fall. However, if your city is still open, we want to hear from you if you can give us the representation the Rainier Truck deserves.

Remember—

The light-truck business is good all the year round.

Prospects are everywhere and easily found without the necessity of costly advertising.

Time-payments are easily taken care of because banks want business men's paper.

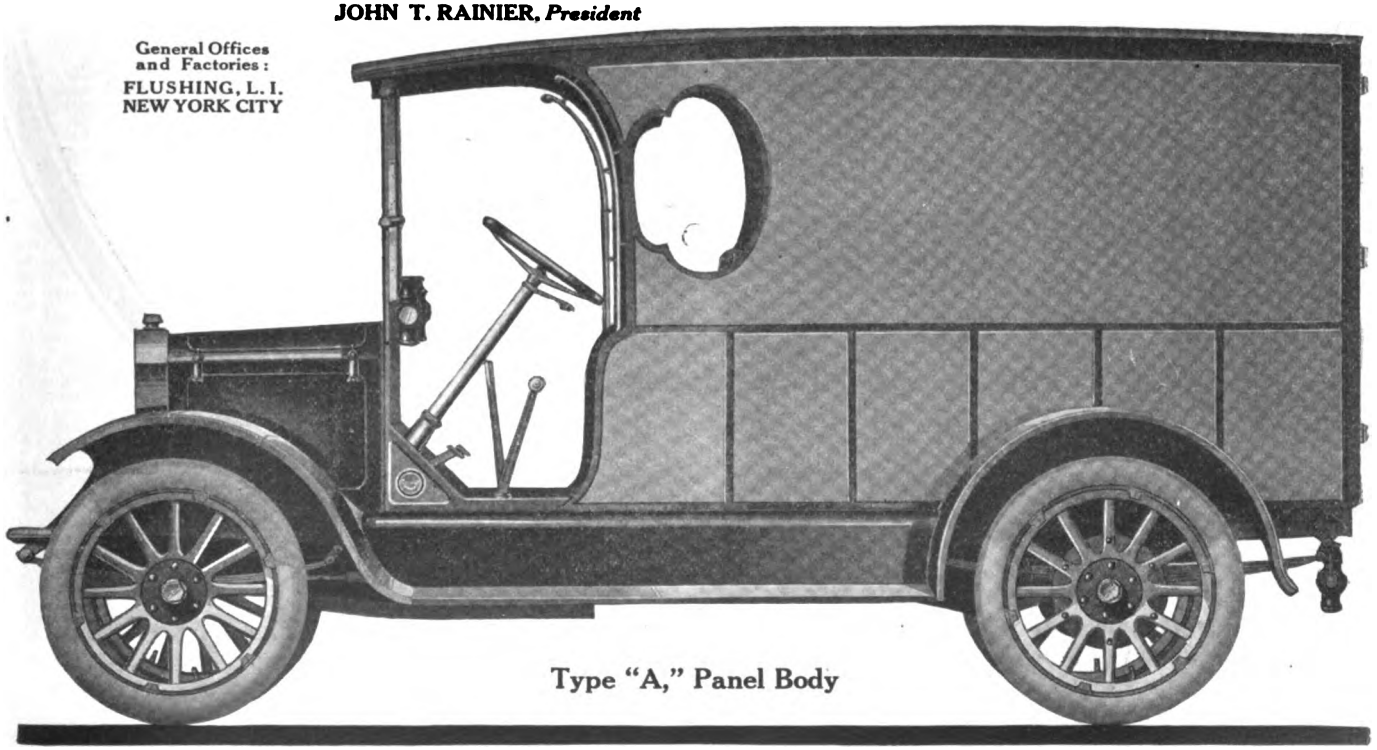
Trades, the bugbear of the automobile business, are the exception instead of the rule.

Every owner of a horse and wagon hopes to replace it with a motor.

Rainier Motor Corporation

JOHN T. RAINIER, *President*

General Offices and Factories:
FLUSHING, L. I.
NEW YORK CITY



Type "A," Panel Body

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OUR NAME

COLUMBIA

AXLES

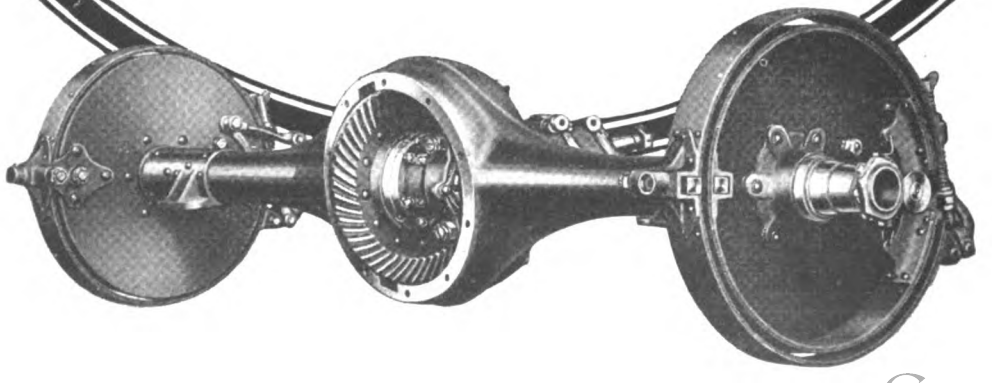
The passing of each year has marked a broad step forward in the advancement of the automobile industry. Old ideas have been swept aside giving place to new, and equipment once standard has been replaced by that of entirely different design.

In the face of such conditions the fact that no changes in the basic principles of construction or design of Columbia Axles have been necessary or desirable is strong evidence that they have been built right from the start. Minor refinements from time to time have kept them over abreast of modern day demands. And today "Columbia Axles" are accepted as representing the highest standard in automobile axle construction.

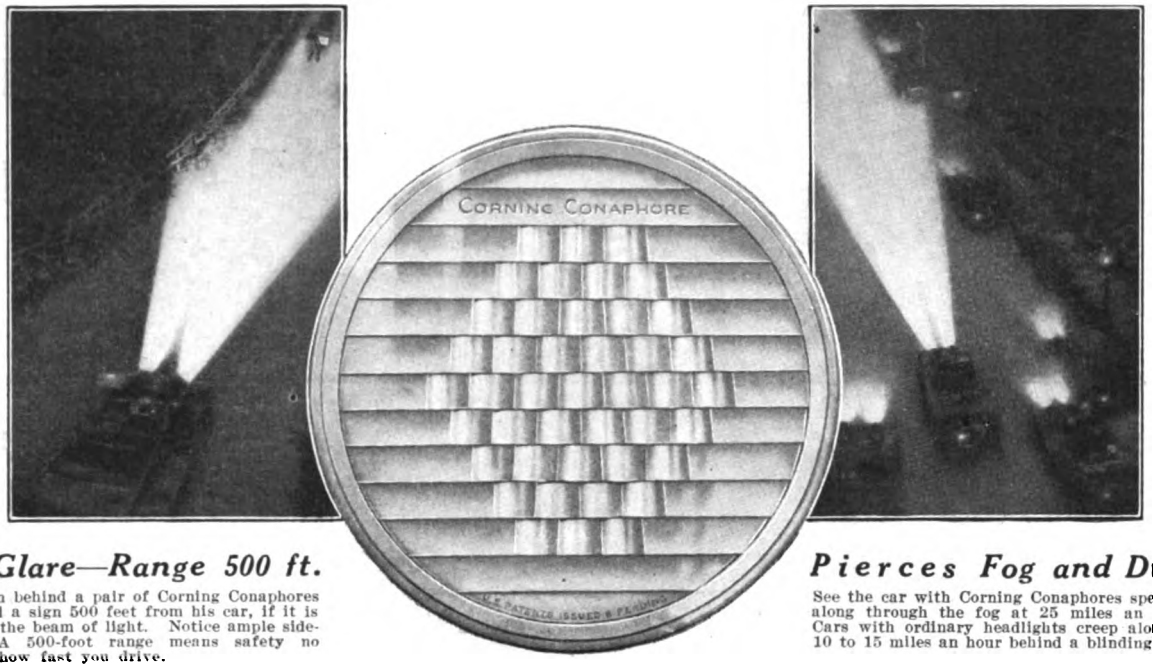
Columbia Axles are built by Axle Specialists. A modern, fully equipped factory is devoted to their manufacture; and each workman whose efforts contribute to their production is highly trained in the performance of his particular task.

A booklet clearly describing the making of Columbia Axles will be mailed on request. Write us today.

THE COLUMBIA AXLE CO.
CLEVELAND, OHIO



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No Glare—Range 500 ft.

The man behind a pair of Corning Conaphores **can read** a sign 500 feet from his car, if it is **held in** the beam of light. Notice ample side-**light.** A 500-foot range means safety no **matter** how fast you drive.

Pierces Fog and Dust

See the car with Corning Conaphores speeding along through the fog at 25 miles an **hour.** Cars with ordinary headlights creep along **at** 10 to 15 miles an hour behind a blinding **blur.**

CONAPHORE

Sets new heaalighting standard

Motorists have long felt the need for a scientific headlight. They want a headlight with long range and strong sidelight, but no glare.

States and cities have emphasized the need for such a headlight by passing strict "anti-glare" laws in an effort to make night driving safe. During 1917 laws requiring the use of a scientific headlight will be in force everywhere.

Ordinary Headlight Dangerous

The ordinary headlight is not satisfactory. It has a bulb to give the light and a reflector to reflect the light, but nothing to control the direction of the rays. The glass merely keeps out dirt and water.

Such headlights are dangerous. They dazzle approaching motorists and pedestrians. The driver has a dim constantly, tilting lamps downward may reduce the glare, but it greatly decreases the range.

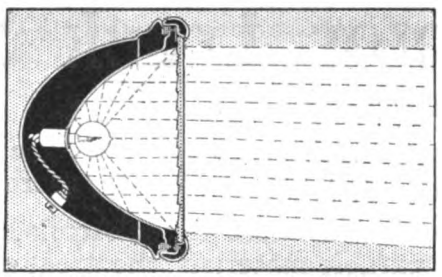
Function of the Conaphore

The headlight problem has been scientifically solved by adding to the bulb and reflector a third part, the Corning Conaphore.

The Corning Conaphore is a scientific headlight glass which directs the rays of light from the bulb and reflector, so that the beam will have long range, ample side-light, will not glare and will pierce fog and dust. Tests shown on this page prove the efficiency of the Corning Conaphore.

Scientifically Correct

The Corning Conaphore is made by the Corning Glass Works, Corning, N. Y., the largest manufacturers of technical glass in the world. This company makes practically all the signal glass used on American railroads. The fact that the Corning Conaphore was designed in the laboratories of the Corning Glass Works is the best guarantee that it is scientifically correct.



SIDE VIEW OF CORNING CONAPHORE

Five Major Advantages

First Four Exclusive

1. Gives headlight range of 500 feet when a standard bulb of 21 candle power or more is properly focused.
2. Cuts out all the glare yet uses **all** the light, thus complying with all city and state no-glare laws.
3. Penetrates fog, dust or smoke, so you can easily drive 25 miles an hour under adverse weather conditions.
4. Has strong side-light which illuminates the roadside; the Noviol Beam makes the green stand out so you can distinguish bushes and ditches.
5. Never clogs with dust or mud in summer, or with ice or snow in winter, and is easily put on any car.

Made in Two Kinds of Glass

Corning Conaphores are made of clear glass as well as Noviol Glass. Clear glass Conaphores are equally efficient in giving long range and eliminating glare, but lack the added advantages possessed by the Noviol Glass of eliminating back glare and penetrating fog or dust. We strongly recommend the Noviol.

Prepare for Big Demand

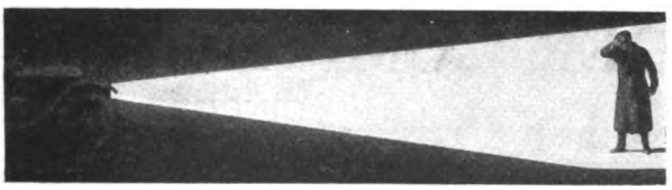
Everything points to a big year in the automobile headlight business. Strict no-glare laws will be in force in practically every state. Already a strong demand is being felt for Corning Conaphores. A progressive advertising campaign will increase this demand. Jobbers and dealers should get their orders in at once to insure early delivery. Write to-day.

Price List

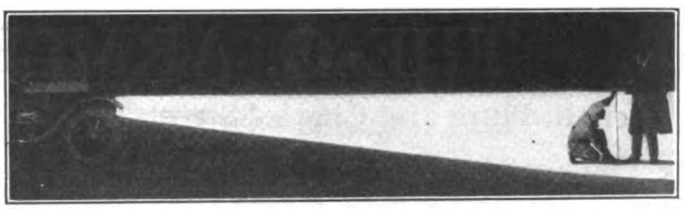
Noviol Glass	Per Pair	Clear Glass	Per Pair
3 to 4⅞ in. inc.	$1.80	3 to 4⅞ in. inc.	$0.80
5 to 6⅞ in. inc.	2.40	5 to 6⅞ in. inc.	1.60
7 to 8⅛ in. inc.	3.50	7 to 8⅛ in. inc.	2.50
8⅝ to 10 in. inc.	4.50	8⅝ to 10 in. inc.	3.00
10⅛ to 11⅛ in. inc.	6.00	10⅛ to 11⅛ in. inc.	4.00

Prices 25 cents more per pair west of Rocky Mts.
Sizes vary by steps of ⅛ inch.

CORNING GLASS WORKS
CONAPHORE SALES DIVISION
EDWARD A. CASSIDY CO., Inc., Managers
Madison Ave. at 40th St. New York City



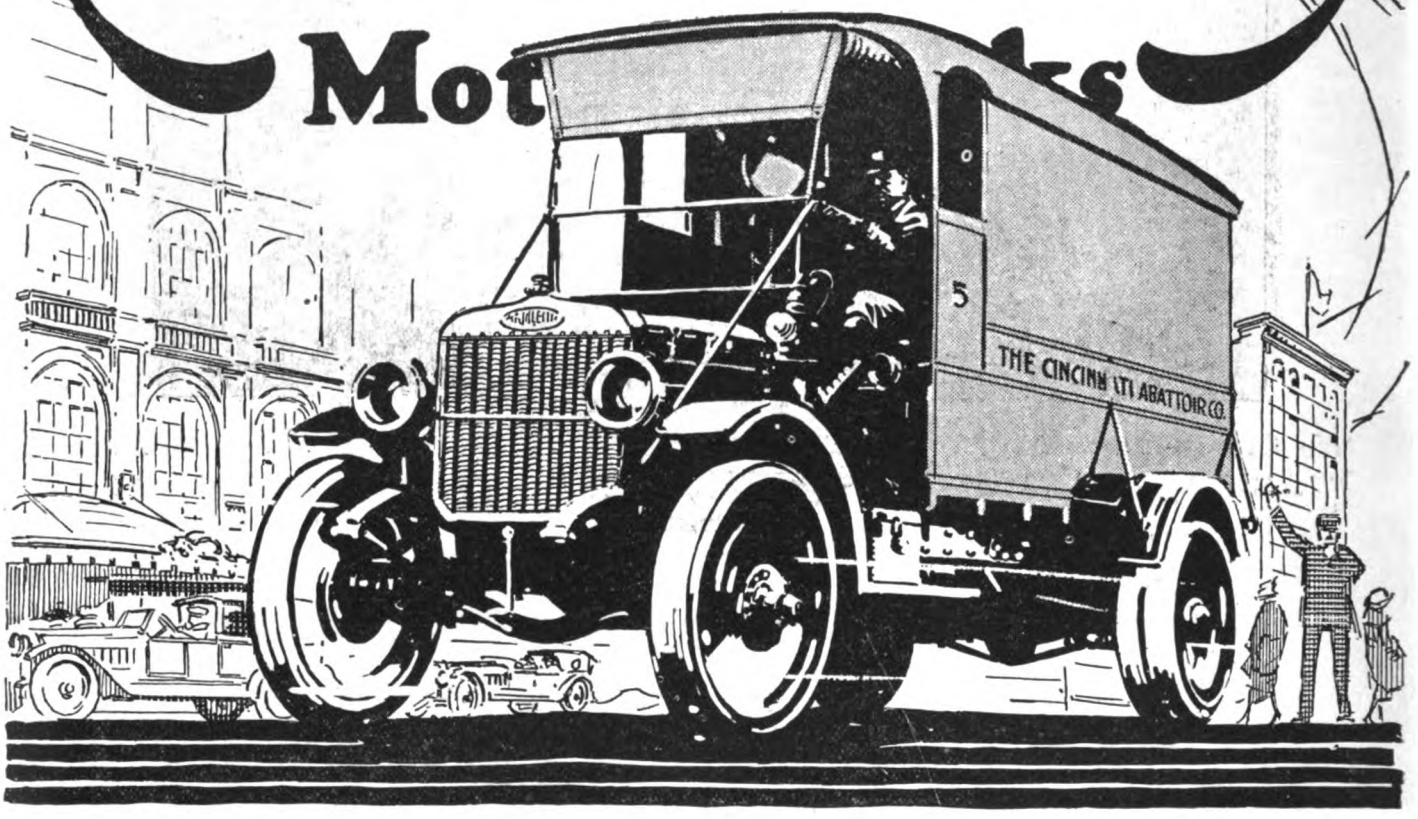
ORDINARY HEADLIGHTS GLARE
The ordinary headlight blinds you with its glare. Glare means danger



NO-GLARE
Light from Corning Conaphores is never more than 42 inches above road.

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ARMLEDER



Armleder Motor Truck Sales Multiply

Wherever one Armleder motor truck goes into service there are shortly two, three, four—and many more.

The inherent staunchness of the Armleder truck—its right design, its incomparable materials, the great satisfaction it gives Armleder owners—quickly sell other Armlederes.

That is why Armleder dealers have flourishing and substantial businesses. They found first sales easy in new territory. So will you.

Write now for the dealers' proposition.

Worm-Drive Two-Ton Three-and-a-half-ton

THE O. ARMLEDER COMPANY

Twelfth, Plum and Charles Streets CINCINNATI, OHIO

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What Gibson Means by Fair Treatment

WE repeat: the three factors contributing to the success of The Gibson Company are Service, Quality and Fair Treatment.

The Gibson policy is that of the "single outlet" —the legitimate accessory dealer or garage operator.

We sell to legitimate dealers—and none other. And we treat them as we, ourselves, would like to be treated.

We will not, knowingly, send our catalog to any dealer who should not have it. And, if by chance, it should fall into improper hands, we will remedy the error promptly, upon notification.

Thus, we protect our dealers—for in so doing we protect our business as well as theirs. We give them all possible assistance and co-operation and aim to make every transaction as much to the dealer's satisfaction as our own. This, we call Fair Treatment.



Our new 1917 catalog of nearly 400 pages is ready to be sent to any legitimate accessory dealer or garage operator who has not already received a copy. Write today, asking for Catalog G-2.

THE GIBSON COMPANY
INDIANAPOLIS

Motor Car Accessories and Tires
Shop Equipment and Electrical Supplies

"Gibson serves the World"

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TUNGSTEN

TRADE MARK REGISTERED

SPARK PLUG



The Tungsten Heavy Duty type was brought out to withstand unusual conditions found in high-powered motors.

It is a big powerful plug with a heavy double glazed porcelain core. Its one-piece center electrode is drawn from the finest nickel steel and will withstand the highest motor temperature without corroding or warping.

Every plug is packed in a handsome lithographed metal container.

It is not sold by mail-order houses.

Write for descriptive circular and prices.

TUNGSTEN MFG. COMPANY **Marshalltown, Iowa**

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The Prize Letter on LAMINUM The MATERIAL for SHIMS

IN the prize contest for the best letter on Laminated Shims, the judges have awarded the prize of $25.00 to Mr. J. B. Peddicord of San Antonio, Texas. The letter is printed herewith and you can judge of it for yourself.

Although Mr. Peddicord's letter was the prize winner his is only one of several letters received from the border telling of the part Laminum played in getting trucks in commission in record time.

We were pleased with the great variety of angles from which the subject was viewed and are extremely gratified at the results of this contest.

It has proven that Laminum is known and appreciated by repair men all over the country.

In our future advertising we will give you a chance to read some more of these letters.

Fort Sam Houston, Texas (San Antonio)
January 22, 1917.

Laminated Shim Co., 533 Canal St.,
New York City.

Gentlemen—

Laminated Shims in motor bearings mean *efficiency*. Time is saved. Accuracy and cleanliness assured. All three mean *money*.

I was greatly impressed with laminated shims while a mechanic with the U. S. Army motor repair shops at Columbus, N. M., last spring.

Trucks, in keeping General Pershing's army in Mexico supplied with provisions and ordnance, were subjected to the most racking service.

Bearings required constant attention, and got it.

Many army trucks were equipped with laminated shims. Hours were saved on each car at each adjustment that was vital. A few hours' delay on a few trucks meant those hours of delay to a whole train of 27 or 33 trucks. Communication with Pershing's base had to be kept open.

Bearings had to be right or it couldn't be done. By peeling off the required number of thin laminas from each shim, the bearings were quickly and accurately adjusted. No time was lost in crawling from under the car to find a vise to hold solid shims while filing them; that saved the time.

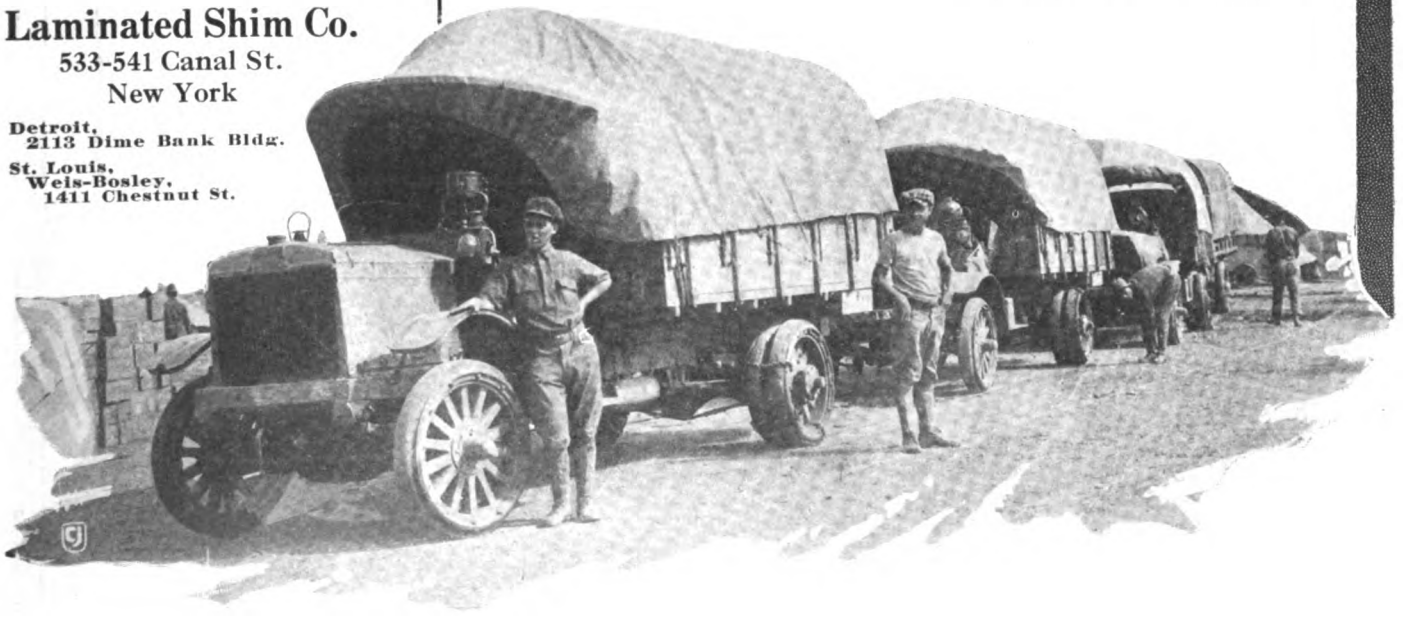
Accuracy was positive as no shims were filed lopsided. A good job was as easy as a poor one. The work was clean. No filings to adhere to babbit metal or to interfere with proper oil circulation. I approve of laminated shims because I know them.

Respectfully yours,
J. B. PEDDICORD,
433 Rogers Ave., San Antonio

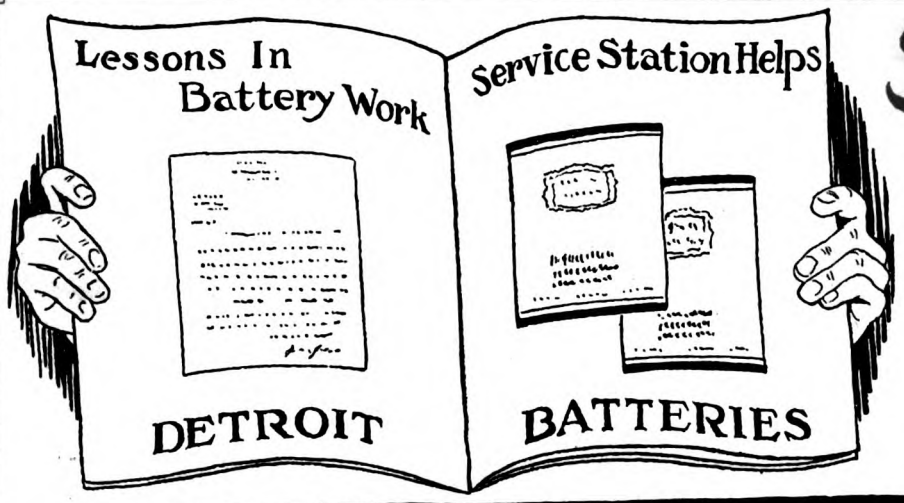
Laminated Shim Co.
533-541 Canal St.
New York

Detroit,
2113 Dime Bank Bldg.

St. Louis,
Weis-Bosley,
1411 Chestnut St.



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This Free Portfolio will lead to this

Do you realize that there are just two things on a motor car that wear out and must be replaced time and time again—tires and batteries. These are the only two accessories which insure a steady, permanent resale business for the dealer who handles them.

The dealer who enters the battery business today steps in just at the beginning of its greatest growth. The business will be trebled within the next three years.

This portfolio will explain how easily the Detroit Battery Company has made entering the battery business for the dealer who can measure up to their standards.

This portfolio will show you how we have taken all the mystery out of the business—how we even give a free course of instruction in practical battery work to our own service station men—how we help them get business—show them how to advertise, and how to treat their customers. The portfolio shows actual samples of the various service station helps—literature, signs, etc. It shows the office system which we have devised for our service stations.

And it will also contain a personally dictated proposition, showing you just what it will cost you to get into the battery business, what equipment is required—what our proposition to you would be and the probable profits you could expect in your particular territory.

And it will describe Detroit Batteries which will be the foundation, and a mighty safe, sound foundation, for the business. It will show how they have been made the longest lived, most powerful batteries on the market.

As a wide awake dealer you ought to know the possibilities in the battery business.

You ought to have this portfolio right now.

It won't cost you a cent. Just fill out this coupon and mail it today.

DETROIT BATTERIES

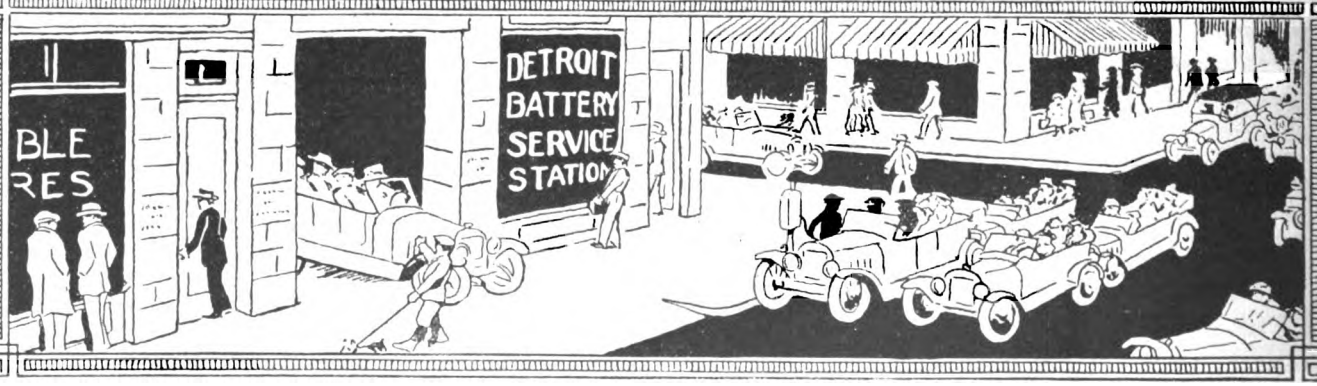
Detroit Battery Company

Detroit, U. S. A.

Detroit Battery Co.,
107 E. High St., Detroit, Michigan.
Send me the portfolio.

Name .....

Address .....



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STEPHENS SIX

"The Car With the Punch"



Deliver Us from Rattles

This common prayer of automobile owners is answered by the Stephens Six.

The handsome streamline body is as sturdy and lasting as the powerful motor and the chassis of extraordinary stamina. It is not a vulnerable spot—the point of least resistance—that the bodies of many motor cars are. Built in our own shops of carefully selected materials and by experienced workmen, the Stephens Six body not only has artistic lines that please the eye, but the strength to withstand the racking strains of hard usage.

After a year of service, the Stephens Six body is not a battered, dull, rattling reminder of former beauty and lustre. The beauty of the Stephens Six is enduring.

Experience Is a Good Teacher

For half a century the maker of the Stephens Six has been building fine vehicles. The Stephens Six body is a blending of all the knowledge that has been gained in fifty years of successful manufacturing experience.

The Stephens Six body reflects the skill and pride of expert workmen. The frame is made by experienced carriage builders. Points of heaviest strain are strongly reinforced. Spreading doors, squeaks and rattles are eliminated.

In painting the Stephens Six, twelve coats of paint are used, requiring twenty-four carefully performed operations. A lasting finish and lustre is the result.

After you have driven the car a year, the Stephens Six has the charm of appearance and performance that it had the day you proudly took it from the dealer.

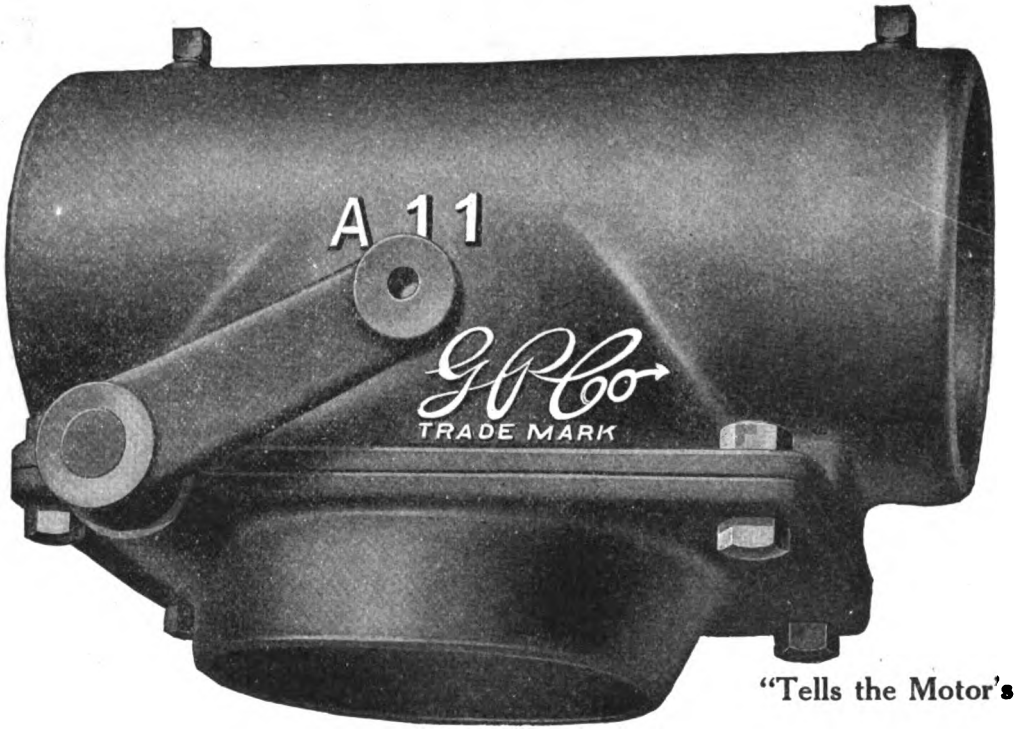
Two Models, Each $1225
Five-passenger Touring Car
Three-passenger Roadster

Our dealer proposition is most attractive. There is still some good territory open.

STEPHENS MOTOR
Branch of Moline Plow Co
MOLINE, ILLINOIS
Factory: Freeport, Ill.

$1225
FREEPORT, ILL.

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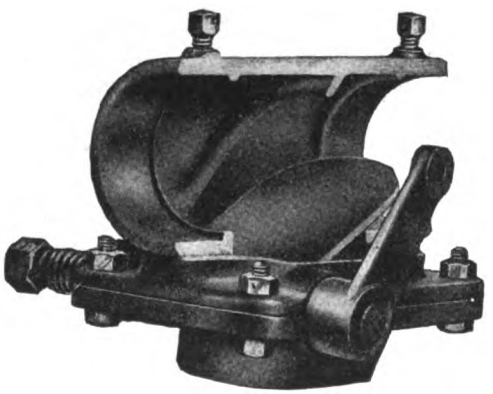


"Tells the Motor's Secrets"

Saves Gas—and Power

You may not be getting the most out of your engine—and you may never know it.

You may be wasting gas and power—but if you haven't an efficient muffler cut-out, this condition may remain undiscovered for some time.



SECTIONAL VIEW

The G-P Muffler Cut-Out will save you gas and power by telling you instantly if all your cylinders are doing their full work. It "tells the motor's secrets."

It is the one muffler cut-out that cannnot leak. Carbon cannot accumulate in it. There is no back-pressure.

Special cut-out for Packard Twin-Six

The only one on the market.

SALES DEPARTMENT

Edward A. Cassidy Co., Inc.
Madison Ave. at 40th St., New York

MANUFACTURERS

The G. Piel Co., Inc.
Long Island City, N. Y.

Ford Special

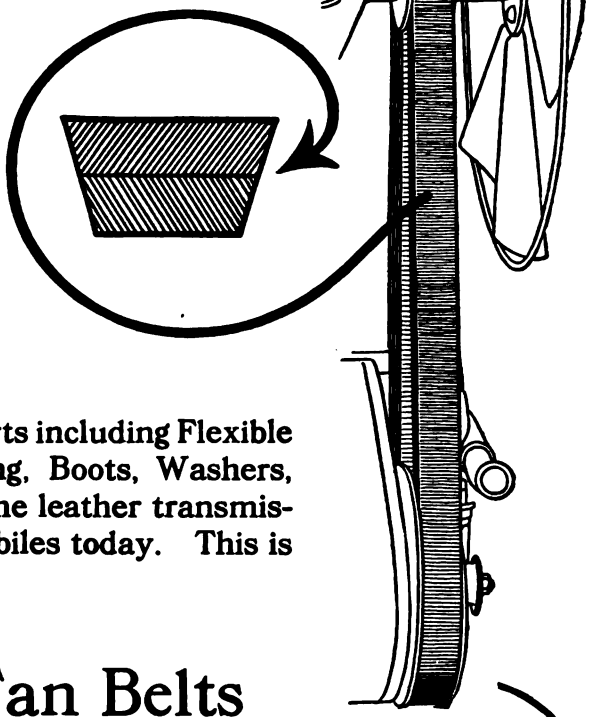
A special outfit for Ford cars consisting of G-P Muffler Cut-Out, pedal and chain.

G-P Muffler Cut-Out

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Vee Sol

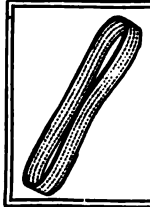
Solid "V" Fan Belting



Here's the ideal solid "V" Fan Belting—**Vee Sol**—made with or without lugs. Accurately cut to angle and size. Flexible, sturdy and practically stretchless. Made of the highest grade oak tanned leather. Holds its shape faithfully. **Vee Sol** comes in rolls of 50 and 100 feet and in 5/8-inch and 3/4-inch thicknesses.

Fan Belting is but *one* of our *line* of automobile parts including Flexible Metallic Tubing, Crank Holders, Frame Padding, Boots, Washers, Discs, etc., etc. We furnish more than 75% of all the leather transmission parts used by the manufacturers of automobiles today. This is proof of the high quality of our products.

Four Other Good H L B Fan Belts



Triple Stitch

Practically stretchless and very pliable. Made of two plies of high-grade oak-tanned leather stitched with three rows of waxed linen thread. Laps and plies thoroughly cemented together.



Wetprufe

Here's the very best fan belt we know how to build. Guaranteed to withstand water, heat and oil. The leading car builders of the United States use and endorse this fan belt.



Flat Grip

Our flat fan belting resists water, heat and oil. Can be cut in any length desired, and made endless with flexible fastener, which we furnish. Laps double-stitched with linen thread.



VEE FLEX

A superior laminated belt for "V" pulleys. Each lamination overlaps the other and is securely riveted. Very pliable and practically stretchless. May be had in either oak or chrome tannage—in continuous lengths or endless.

Write today for Samples and Attractive Prices with Name of Jobber nearest you

Hide, Leather & Belting Co.

227-D S. Meridian St. INDIANAPOLIS

Tear Off and Mail

Hide, Leather & Belting Co., Indianapolis

Send full information about the products checked below, with name of nearest jobber.

___Wetprufe Fan Belt ___Metallic Tubing
___VeeSol Fan Belting ___Crank Holders
___VeeFlex Fan Belting ___Frame Padding
___TripleStitch Fan Belt
___Flat or Round Fan Belting D

Sign name and address in margin below.

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AUTOMATIC IGNITION CONNECTICUT



Dependability

Automatic protection is essential wherever carelessness or neglect can result in danger or loss. Boilers have safety valves. Factories, sprinkler systems. Railroads, block signals.

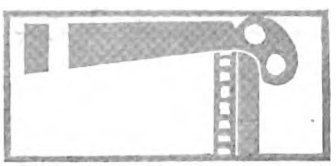
And on the more modern automobile the Automatic Switch protects the battery against drainage by cutting off the flow of current—automatically—when the motor stops, should the driver forget or neglect to do so. No automatic protective mechanism is any more dependable.

The device shown above marks this switch and identifies Connecticut Automatic Ignition. This is "The Device of Efficiency"

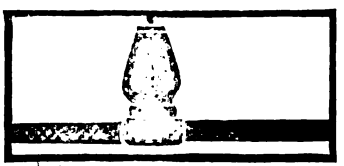
CONNECTICUT TELEPHONE & ELECTRIC COMPANY
Meriden Conn.



THE SAFETY VALVE

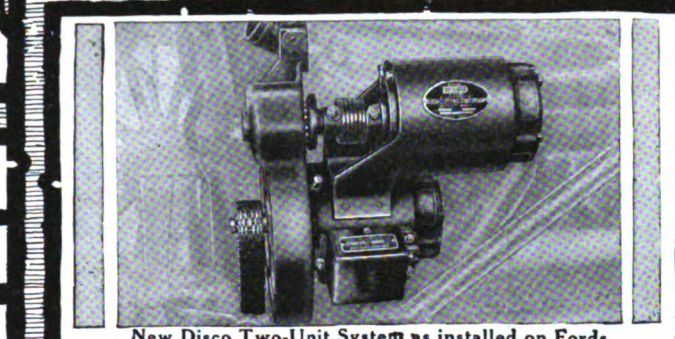


THE BLOCK SIGNAL



THE AUTOMATIC SPRINKLER

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New Disco Two-Unit System as installed on Fords

New Disco *for* Fords

The New Disco Two-Unit Starting and Lighting System for Ford Cars has important advantages over other Ford Systems.

Excess Power

It is the first Ford System with an abundance of **extra** power. It is generally known that other systems for Fords have been just powerful enough to start a Ford Motor under usual conditions, with little reserve power.

The motor and generator of the Disco System is the same as used in the system we are now installing in many cars having "big six" and "big eight" motors, such as the Continental, or Perkins "8."

They handled these motors with perfect ease even in the coldest weather.

This **excess** power assures easy starting under **all** conditions and lengthens the life of the system by preventing strain.

Ease of Installation

The entire system can be installed in less than 3½ hours as the generator and starting motor come completely assembled and are fastened to engine with four bolts.

Removing four thru-bolts is all that is necessary to disassemble either unit, for cleaning or adjustments.

Greater Efficiency

The motor is equipped with the famous Bendix-drive used on the highest priced cars.

It spins the motor easily under a very low current draw.

The full power of the battery is maintained even in city driving, as the generator cuts in at about 6 miles per hour.

The old type underfoot starting switch is replaced with a much more convenient device, a combination starting and lighting switch with dimmer. This is attached to the steering column immediately under the steering wheel and locks securely with a key, preventing the unauthorized use of either starter or lights. An ammeter, which serves to show whether the generator is functioning properly, is mounted on top of this switch box, in full view of the driver.

Price $75, f. o. b. Detroit

Disco Electric Starter Corp. *All cars would be better cars if Disco Equipped* **Detroit**



ALL CARS WOULD BE BETTER CARS IF DISCO EQUIPPED

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A Modern Necessity

for the

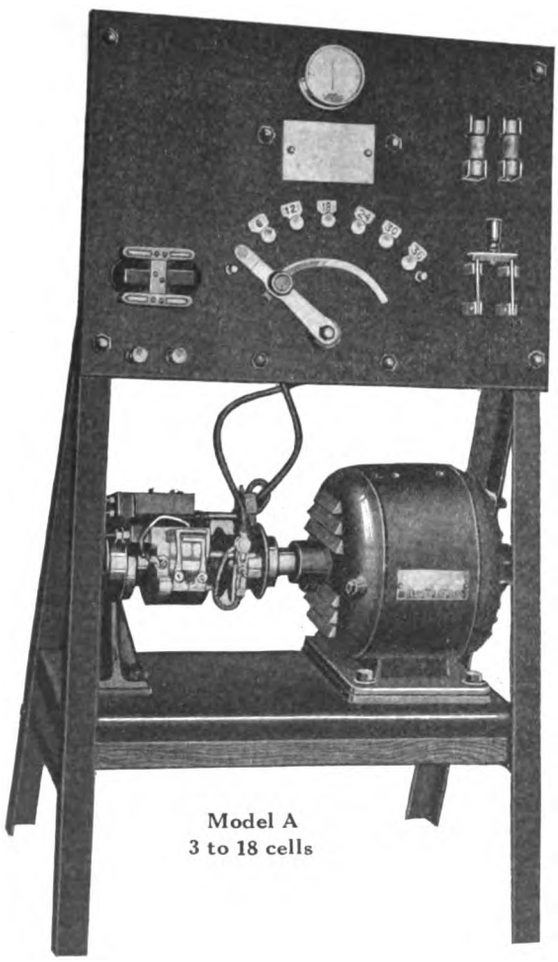
Garage—Repair Shop—Service Station

An **Efficient**—Low Priced Rectifier

for charging

Starting and Lighting Storage Batteries

LITTLE GIANT
—CONVERTERS—



Model A
3 to 18 cells

Are Simple and Durable, Carefully Designed and Well Built. They are shipped ready for service.

DELIVERY PROMPT

Workmanship, material and operation guaranteed. Fully protected by the A. R. Bullock patents and patents pending. Beware of infringements.

Quotations on all sizes on request.

Write for further information to

THE LITTLE GIANT CONVERTER COMPANY

983 THE ARCADE, CLEVELAND

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TODAY-Read This Great Crow-Elkhart Announcement in the Saturday Evening Post

Here is the big, unchallenged motor car development of 1917-18. This heralds the supreme sales success in light cars. Read—then act. To the dealer—in unclosed territory—this insures the greatest immediate and permanent profit. Note statement in advertisement below regarding "immediate deliveries." *Wire* for unusual proposition.

Crow-Elkhart Motor Company
Dept. 25 Elkhart, Ind.



THE SATURDAY EVENING POST 31

The Newest Wonder of Motordom—the

Multi-Powered Car

Won National Approval in 30 Days

Since last month's announcement of "A Power Miracle" the demand for this new wonder car has grown in an astounding way. East, West, North and South all wanted it at once. Notwithstanding, our enlarged factories are making immediate deliveries. The Multi-Powered Car is hailed as a revolution in light car performance. By new motor construction its power is *multiplied*.

In 30 days the Crow-Elkhart Multi-Powered Car has become the king of light automobiles. Its success has been immediate.

This is exclusively Crow-Elkhart motor design—no other motor embodies the same engineering ideals.

A new kind of power is created by a new kind of construction.

Motoring is transformed into travel smooth as silk.

Without vibration, without speed-effect, if you wish, you sweep along at 50 miles an hour. Acceleration is spontaneous—from a standing start to 40 miles an hour in 20 seconds. The liquid power-flow seems the same at all speeds—just expands at your gentle footpress. In traffic you lull down to 3 miles an hour on high gear.

The wonderful wide range of power and flexibility is as great as your need will ever be—greater than ordinary driving requires. This is the miraculous effect of multiplied power in the Crow-Elkhart Multi-Powered Car. It gives the brute energy of a far heavier motor with a supreme refinement of power—silken smoothness that seems the same at 20 to 30, 30 to 40, 40 to 50 and 50 to 60 miles an hour.

Such dominant smoothness enables the utmost economy—20 to 26 miles on a gallon of gasoline. It reduces all car strain. It brings new multiplied power advantages in a moderate priced car—creates a new standard at $795.

Engineer Martin E. Crow has crowned the success of his 9-Year Chassis and its many up-to-the-instant advancements. No other established car under $1000 in price has a similar improvement.

Write for Complete Description

Get a full account of the wonderful performance of the Crow-Elkhart Multi-Powered Car. Read the secret of its miraculous power! Know its dominant features. Then see the beautiful coach work and custom service—Ten Color Options and Three Upholstery Options—which top this amazing value. You'll realize *how* this Multi-Powered Car won national approval in 30 days.

Only Two More Weeks at $795

At midnight, April 14th, the Crow-Elkhart Multi-Powered Car (Touring and Roadster) advances in price to $845, wire wheels $50 extra. You save a goodly amount by placing your order at once. Here is the ultimate in motor car construction—still within your grasp at a price so low it cannot be continued.

CROW-ELKHART MOTOR CO., Dept. 19, ELKHART, INDIANA
Canadian Crow Motor Company, Limited, Mt. Bridges, Ont.

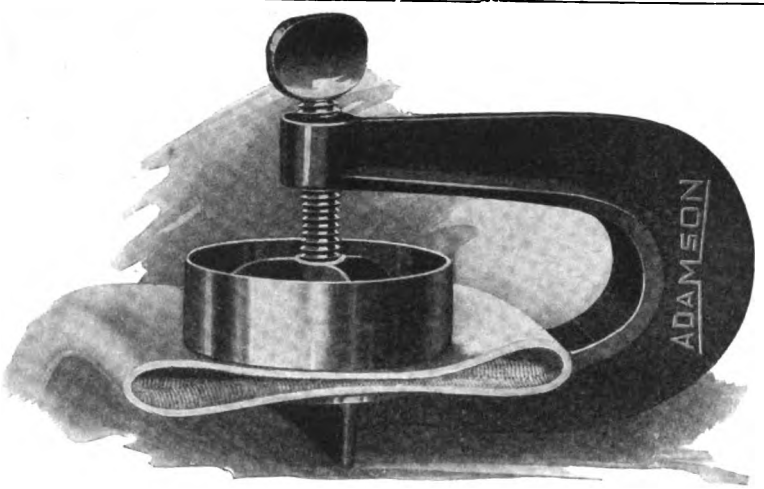
Dealers: Still a few open opportunities. You should wire. No equal chance in next two years.

Features: The Crow-Elkhart Multi-Powered Car is the largest car in America at the price—with extra inneau space and wide 49-inch rear seat; 114-inch wheelbase; light weight 2040 pounds (touring); chrome nickel steel gears in rear axle; full floating rear axle; underslung three-quarter elliptic rear springs; heavy steel dome fenders.

Crow-Elkhart Multi-Powered Car $795

A full page advertisement announcement appears at the same time in representative American newspapers from coast to coast.

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Announcing the New—

ADAMSON

5-Minute Vulcanizer

MODEL "E"

Meets the demand for a light and handy outfit for the quick repair of tube punctures. Uses common gasoline—the most convenient and dependable fuel. Will vulcanize your tubes **anywhere** in five minutes.

Designed on the same proven principles that have made ADAMSON Vulcanizers the most practical and largest selling line in the world.

Sells complete with box of a dozen "Adamson" 5-minute Repair Gum Patches for $1.50. Extra box of 12 patches only 25c each.

DEALERS:

This outfit will be a tremendous seller —order now from your jobber.



For larger tube injuries, tire and tube blow-outs, tread cuts, etc., the old reliable "Adamson" line is complete with several models for car owner and garage use.

➡ "Adamson" Repair Gum is essential for best results. Its exclusive qualities and advantages are a guarantee against failure.

Sold by all Jobbers

Adamson Manufacturing Co.

EAST PALESTINE, OHIO

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Big New Profits For Motor Car Dealers

Lalley-Light, the Six-Year Success in Electric Light and Power for Farmers, Is the Opportunity of a Life-Time

A wave of Lalley-Light enthusiasm is sweeping the automobile trade. Dealers are on tip-toe with eagerness. Several score write and wire us every day for the selling rights on Lalley-Light.

They see the golden opportunity. They want to grasp it. Dealers in farming territory, distributors with sub-dealers, are equally keen for the Lalley-Light franchise.

All of them know the farmer wants reliable electric light and power. They know he is ready to buy, and has the money to pay. They want to share his prosperity in a legitimate way.

Motor Car Dealers At Big Advantage

Farmers are no strangers to motor car dealers. And they are the best prospects in the country for Lalley-Light.

So, every man who has sold automobiles to farmers has a prospect list all ready for Lalley-Light. He has even more than that. He has the confidence—most likely the friendship—of farmers to whom he has sold. Thus he is a logical man to sell Lalley-Light. Farmers want and need Lalley-Light as much as automobiles.

He can even demonstrate at the farm homes by mounting an outfit in one of his cars. He can drive to the farms at any time. This demonstration is as easily made as the demonstration of an automobile.

Brilliant Light and Ample Power

Lalley-Light gives the farmer everything he wants or needs in light and power. It is reliable, as proved by its six-year-record of success. It is durable. It furnishes steady, brilliant light, and ample power. It gives him simplicity, efficiency, and low operating cost.

Lalley-Light was designed to be a farm light-and-power plant. It is not an adaptation or a makeshift. It is a carefully-thought-out electrical plant for farm and country home use.

A Growing Success For Six Years

Six years ago it passed the experimental stage. Others tell us of plants still in use after four, five, six years of continuous service.

All through these six years Lalley-Light has been growing. We have just occupied a new and larger plant. Even with our enlarged facilities, we are unable to keep up with orders, and we are again increasing our output.

We tell you these facts to show how eagerly farmers are buying. They are willing to improve their homes—to make them more attractive, to lighten labor in house and barn. In brief, to get all the city conveniences into their homes.

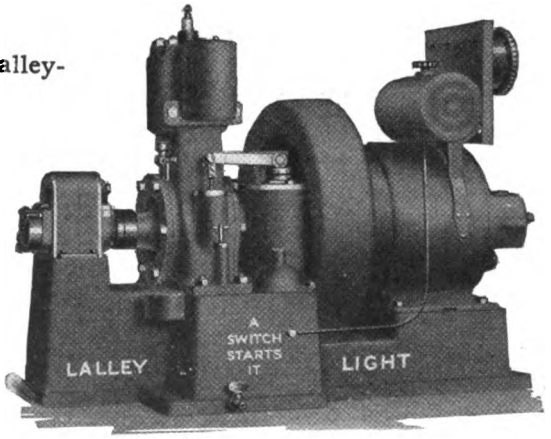
Now Is the Time; Grasp the Big Chance

Lalley-Light adds nothing to your overhead. The cost of a demonstrating outfit is low.

The chance for profit is almost limitless. The field is practically virgin. Farmers are ready and willing to buy.

We know of nothing you can add to your business that offers opportunity as great as Lalley-Light. If you do not reach out and grasp your big chance now, the loss will be yours alone. Discounts are good, territory liberal.

Send in the coupon today—this minute. Good territories are being awarded rapidly. Therefore immediate action on your part is essential.



LALLEY-LIGHT

Lalley Electro-Lighting Corporation,
1826 Mt. Elliott Ave., Detroit, Mich.

Send at once details of your proposition as to discounts, territory, etc.

Name.....

Address.....

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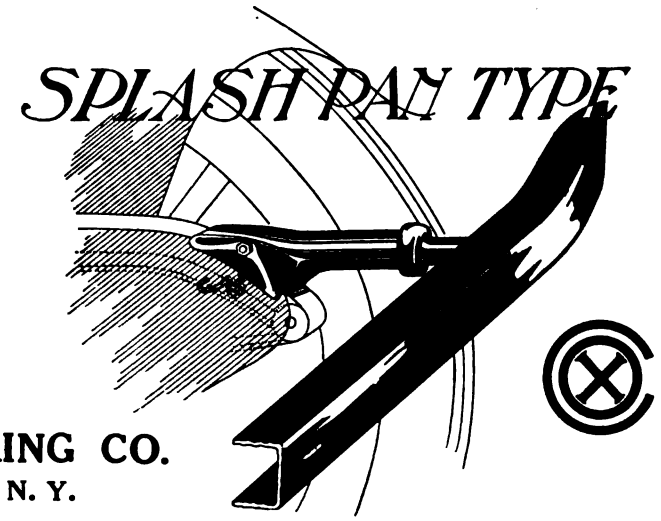
COX
"SPLASH PAN"
BUMPERS

Will not disfigure splash pan. They are designed for use on cars such as the Chalmers, Hupmobile, White, Mitchell, etc., whose splash pans extend out to the front of the frame.

The brackets are formed to give firm attachment without disfiguring splash pan, by the use of a specially devised bolt and hook.

Our special step wedge adjustment is used in this bracket to secure conformity to any curve of spring.

Write for our catalog and get to know the Cox Bumper line. The best made.



COX BRASS MANUFACTURING CO.
Home Office and Factory: Albany, N. Y.

WELD YOUR OWN ALUMINUM

With a blow torch.
You can make broken and cracked aluminum parts as good as new, by using

STEWART ALUMINUM COMPOUND

Positively guaranteed to do the work as well as an oxy-acetylene torch and at a cost that permits no comparison.
Any garage mechanic can make perfect welds with Stewart Aluminum Compound and a blow torch, using an old case knife to V-out and clean the break.
This may sound too good to be true—but a trial will convince you. Remember it's guaranteed. You get your money back if it does not do what we say.
Write for a 75 cent sample today (postpaid).
Price, pound lots—$2.50.
Dealers—Write for our discounts.

STEWART ALUMINUM COMPOUND CO.
5927 Broad St. Pittsburgh, Pa.

THE AUTOMOBILE

is the industrial engineering and trade authority of the Automobile Industry—the oldest weekly journal in this field.

Its trade news is complete; its descriptions of new models and products are dependable, being written by its own engineering experts.

THE AUTOMOBILE is edited for those who wish to be thoroughly informed in all matters pertaining to the progress of the manufacture and operation of cars and other products of the industry.

Published weekly, $3.00 per year.
Canada, $5.00; foreign, $6.00.
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THE AUTOMOBILE
239 W. 39th Street New York City

BETHLEHEM MOTOR TRUCKS

"Dependable Delivery"

$1125
1¼ ton Chassis

$1665
2¼ ton Chassis

$1165
1¼ ton Complete
with body and top over driver's seat
All F.O.B. Allentown

Built to dominate the truck business in your territory—backed by the Bethlehem guarantee and a strong national advertising campaign. Is your territory covered?

BETHLEHEM MOTORS CORP'N
ALLENTOWN, PA.

MOTOR AGE

"The Motoring Authority of America."

Published weekly at Chicago.
$3.00 per year.

DEALERS GARAGEMEN

Do your customers read *MOTOR AGE?*
Do you know that every motor car owner really needs a good motoring publication to help increase his motoring pleasure and decrease his upkeep expense?
MOTOR AGE to the car owner is what MOTOR WORLD is to the dealer. It helps him get every ounce of pleasure out of motoring and makes him a more satisfied car owner and customer.
If you haven't our special proposition to dealers and garagemen for securing subscriptions, ask us to send it to you.

MOTOR AGE
MALLERS BUILDING CHICAGO

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MONROE

25% More H. P.

Without Increasing Size or Number of Cylinders in the

MONROE "4"

Friction Wiped Out by the Monroe Pressure Oiling System

The piston displacement of the Monroe "Four" is just under 150 cubic inches.

This size motor in other cars delivers approximately 33 horsepower. But in the Monroe this same size motor delivers 44 horsepower.

This extra horsepower in the Monroe is simply power that is wasted in other cars. Wasted through friction and vibration. In the Monroe, by practically eliminating friction and vibration, this 25 per cent more horsepower has been attained. New endurance and economy limits have been secured.

Lubrication Problems Solved

Two features of the Monroe lubricating system make possible this remarkable reduction of friction.

The bearings of the crank shaft and the crank pins are at all times practically floating in oil. The crank shaft revolves in an oil envelope, without metallic contact.

There is a continuous stream of oil, many times greater than is necessary, through the crank shaft from end to end. This excess oil flowing through the crank shaft carries away with it the heat of bearing friction, thus maintaining the lubricating value of the oil in the bearings.

Under-Oiling and Over-Oiling Eliminated

Hitherto, even in the highest priced cars, the oil supplied to the pistons and cylinder walls at the maximum power output was the same as when the engine was running at the same number of revolutions with nearly zero output. Where this is the case over-oiling or under-oiling is inevitable.

In the Monroe you get a pressure system which supplies oil directly to the motor, which supply is increased or decreased according to power production.

It is the scientific correctness of lubrication control on the Monroe "Four" that gives it its astonishing freedom from carbon deposits in the combustion chamber, on the exhaust valves and spark plugs.

The bearings of the Monroe motor show less wear per year of service than has been attained by other methods of lubrication. Also a greater amount of wear is permissible before it is necessary to make bearing adjustments.

Beautiful Bodies

Added to the mechanical perfection of the Monroe is a beauty of line and an elegance of appointment that immediately attract those who seek beauty in a car.

It offers a luxury of appearance that is rarely found in anything but cars of the highest price.

Monroe Dealers are selected with the greatest care. They must be alive to the wonderful opportunities Monroe offers them.

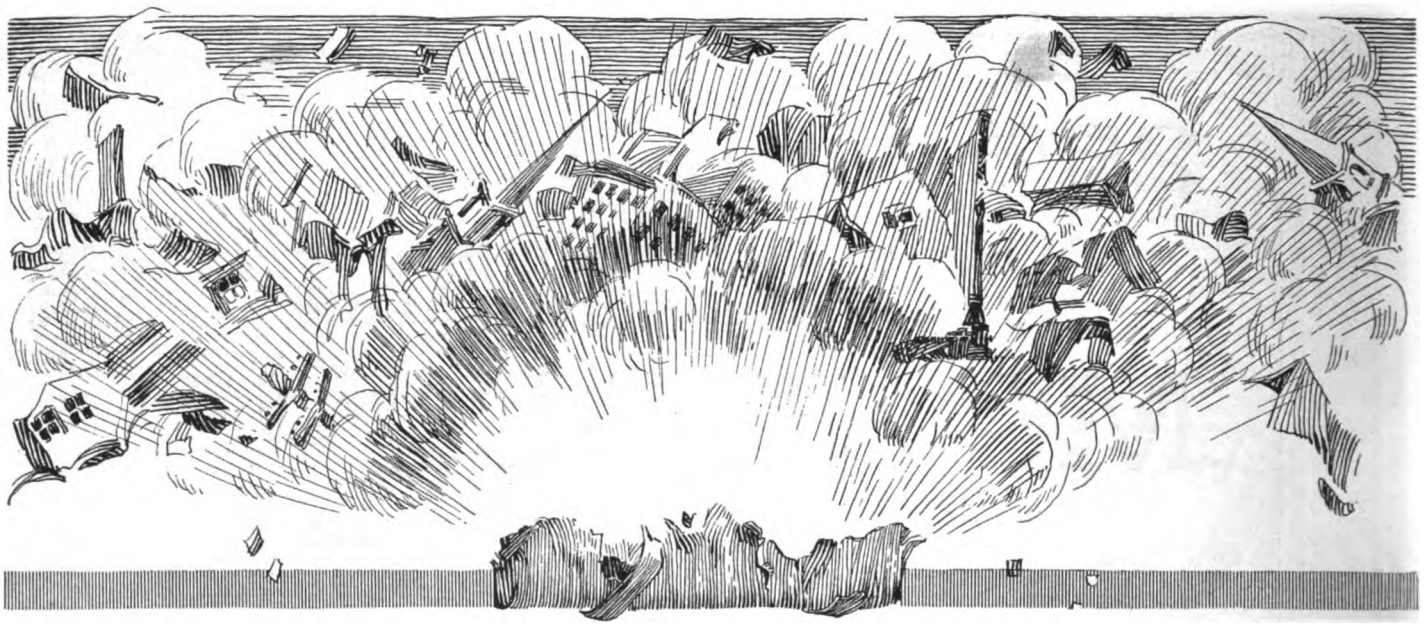
Price $985, f. o. b. Pontiac, Mich.

MONROE MOTOR COMPANY, PONTIAC, MICH.

Makers also of a Small "4" in Sedan, Roadster and Club Models (11)

MONROE MONROE

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There Is Enough Latent Energy in One Gasoline Tank to Wreck a City—If Properly Harnessed

And there is infinitely more power in the gasoline consumed by every motor car than is ever transmitted by any system of carburetion now in use.

With absolute control of the latent power in gasoline, cars should run 100 miles per gallon. No one has ever—perhaps will ever—be able to make use of the tremendous power from gasoline that is now wasted in every motor, but—

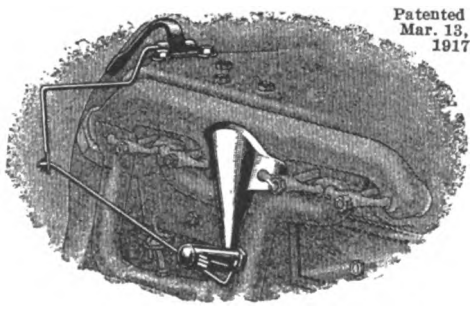
The FOOT AIR ACCELERATOR

Knows How to Harness the Power

—to increase the present mileage per gallon from 75 to 100%
—to insure more speed
—to guarantee more power
—to reduce carbon formation
—to make for a cooler motor
—to give greater flexibility and ease in driving.

There is no further need for any owner of a Ford car to spend twice as much money for fuel as he needs to spend. Cutting down the amount of gasoline used per mile to half has the same advantage from the standpoint of the pocket book as slashing the price in two.

Dealers—Write for Our Unusually Liberal Offer



The Foot Air Accelerator Installed

The FOOT AIR ACCELERATOR is a live seller, *guaranteed for life.* The best service you ever had from any manufacturer—and a co-operative selling plan that beats them all.

Write or wire for complete details.

Foot Air Accelerator Company

Union Central Bldg., Cincinnati, O.

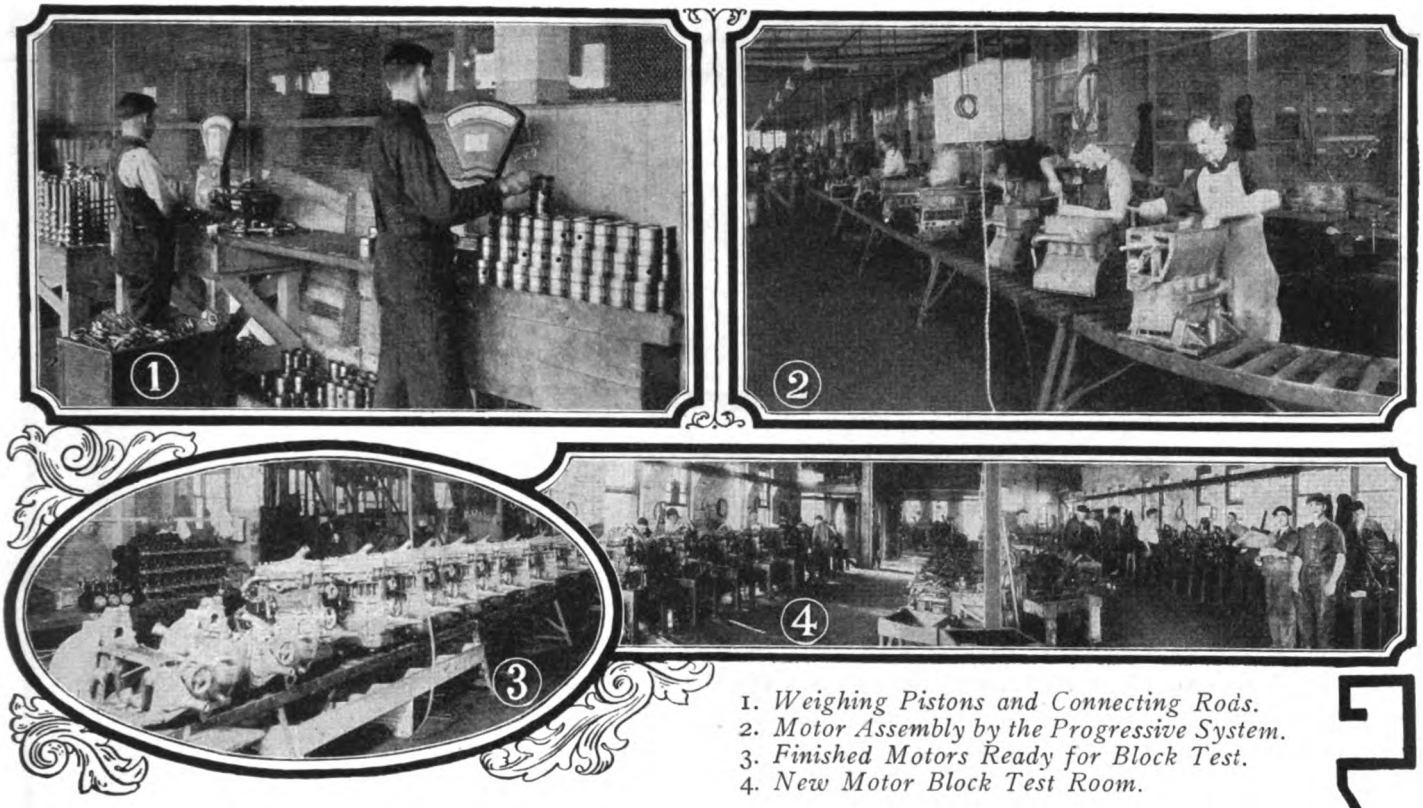
Price

$6.00

Complete

Made Especially for Fords

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1. *Weighing Pistons and Connecting Rods.*
2. *Motor Assembly by the Progressive System.*
3. *Finished Motors Ready for Block Test.*
4. *New Motor Block Test Room.*

Sureness in the Factory Means *Satisfaction* On the Road

Here are more interesting Briscoe factory views. Again we illustrate how our modern methods make **certain** of quality. We reject any motor part that doesn't meet perfectly our weighing test. According to our progressive motor assembly system every part of the half million dollar motor is fitted and inspected by a workman particularly skilled at that one job. Before the motor goes into the car the block test makes sure of every ounce of balance and power.

It is this kind of thoroughness and accuracy—in all departments throughout our 10 great Briscoe factories — that insures the silence, smoothness and flexibility of each car when it reaches the owner's hands.

DEALERS—WRITE FOR TERRITORY

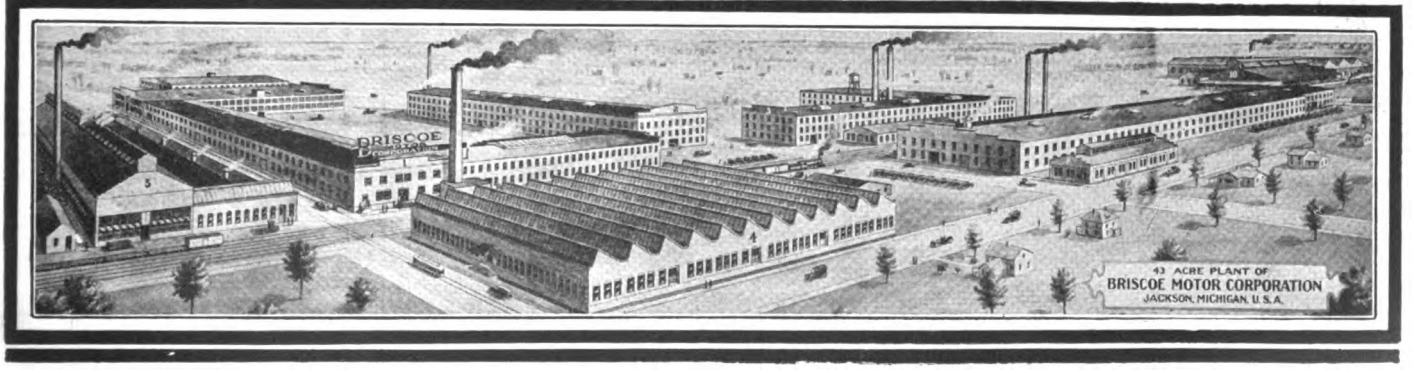
Find out if your district is open. You want this kind of factory efficiency behind you. Ask us to show you the unusually successful sales records of Briscoe dealers.

Learn the amount of the Briscoe dealer's profit per car—this is larger than on any similarly priced automobile. Notify us of your interest now.

BRISCOE MOTOR CORPORATION, Dept. 48, Jackson, Mich.

BRISCOE $685 FULLY EQUIPPED

The Car With The Half-Million Dollar Motor



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BRUNNER

He meets the man who Brunner-ized The garage which he has patronized —



For When He Meets You, Mr. Garageman, He Vents His Feelings Undisguised, in a Hearty Handshake Emphasized By a Smile of Satisfaction, Which Is a Part of the Daily Routine of the Garageman Who Displays the Brunner Sign.

And now, Mr. Garageman, to make a long story shorter, we might say that this whole thing simmers down to the question of whether or not you want the trade of the Brunnerwise Motorist? We have created him for you, and a Brunner Air Compressor in your garage would place you in position to render him Brunner Service, while a Brunner sign on your garage would serve as an introduction.

If You Have Not Read Brunner's Garageman's Handbook on Compressed Air, You Should Read It and Get the Facts Concerning the Garage Air Compressor Situation, Today



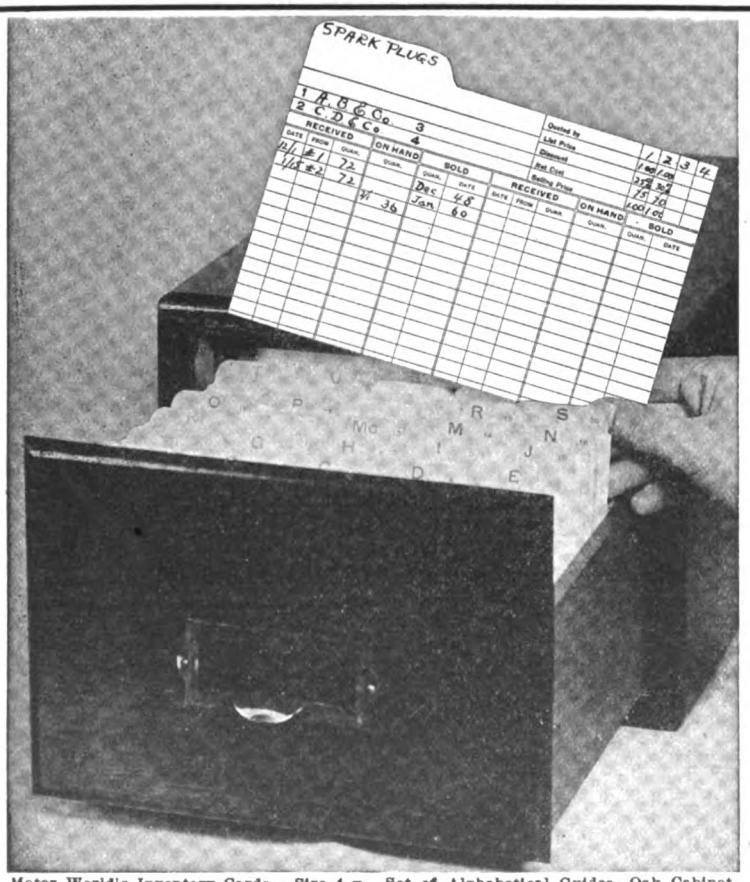
We will be very glad to send you this book along with our new No. 14 Catalogue, and the name of the Brunner Jobber covering your town. And we want you to know that our line is sold exclusively through the largest and most responsible jobbing houses in the country, whose binding guarantee along with ours goes to you with Brunner Equipment.



Brunner Manufacturing Company

Main Office and Plant: Utica, N. Y.

Cincinnati Branch: 419 First National Bank Building, Cincinnati, Ohio



Motor World's Inventory Cards. Size 4 x 6, $1.00 per 100; $9.00 per 1000. Size 5 x 8, $1.25 per 100; $12.00 per 1000. Outfit 46A, consisting of 500 Cards, 4 x 6. Set of Alphabetical Guides, Oak Cabinet, Complete, $8.75. Outfit 58A, consisting of 500 Cards, 5 x 8, Set of Alphabetical Guides, Oak Cabinet, Complete, $11.00.

Here *You* Have It!

A complete record of your stock of materials and accessories on hand. This Motor World's Inventory and Perpetual Stock Record Card shows you, in a jiffy, the condition of your stock of any article on hand—what it costs, its selling price, how many bought, how many sold, and the balance on hand.

This system is essential to good business methods. YOU should have it. NOW is a good time to install the Motor World's Stock Record System. ACT AT ONCE. This System pays for itself.

Send Check or Money Order to

A. Bobbe & Company

Exclusive Authorized Manufacturers of Motor World's Card Systems.
Special Systems designed and manufactured to order.

320 Broadway New York City

Digitized by Google



2800 Miles Free From Expense Is What

MAXOTIRE

Did For This Casing After 3000 Miles of Service

After running 3000 miles, this tire was found to be unsafe unless re-enforced. A MAXOTIRE was inserted. It ran 2800 additional miles up to the time this photograph was made, without giving any tire trouble. The MAXOTIRE is in good condition and ready to give equal service in still other tires. The first 3000 miles of service from this casing cost $19.90. The last 2800 miles cost practically nothing. THE MAXOTIRE is now nearly as good as new.

Dealers Make Big Sales in Exclusive Territory

There are bigger profits in MAXOTIRE than in new tire sales—with satisfied customers every time. MAXOTIRE is not sold through jobbers or cut rate supply houses. Your customers must come to you—and your territory is *exclusive*.

Our national advertising works for you. All the inquiries and sales go to our dealers. Every car is a prospect for MAXOTIRES—and there are more than 3¼ million cars registered in the United States today.

Write for free illustrated catalog and complete details.

K & W RUBBER COMPANY

3d Street, Established 1908 Ashland, Ohio

LPCHO

Special Bumpers
for
Cadillac, Cole, Chevrolet, Franklin, Ford, Packard, Pathfinder, Saxon "6", Briscoe, Dodge and Others.

Special Rear Bumpers
for
Simplex, Buick, Cadillac, Mitchell, Overland, Saxon

Send for Complete Information

Bear in mind there is a HALLADAY Bumper for every car—a bumper built to every car's protection and appearance requirements.

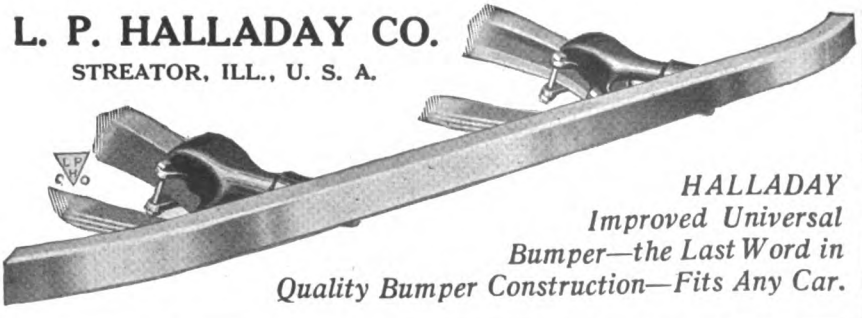
HALLADAY

The QUALITY Mark of a Bumper

HALLADAY Rear Bumpers are meeting with a record-smashing demand everywhere. They furnish protection against rear-end "run ins" which the driver is unable to anticipate or avoid.

HALLADAY Bumpers are to be had from most good dealers and supply stores. Ask to see the latest models.

L. P. HALLADAY CO.
STREATOR, ILL., U. S. A.



HALLADAY Improved Universal Bumper—the Last Word in Quality Bumper Construction—Fits Any Car.

Digitized by Google

This Is the Plug



Have You This Plug On Your Car?

These Are the Manufacturers Who Equip With AC

The Standard Spark Plug of America

Cadillac	Buick	Stephens	Wilcox Trux
Pierce-Arrow	Oakland	Apperson	Gramm-Bernstein Truck
Packard	Oldsmobile	Davis	Gabriel Truck
Marmon	Jeffery	Daniels	Murray
Hudson	KisselKar	Detroiter	Monroe
Chalmers	Premier	Paterson	Federal
Hupmobile	Knox	McFarlan	American-La France
Haynes	Jordan	Bour-Davis	Anderson
Peerless	Liberty	Lexington-Howard	Four Wheel Drive
Dort	Crane-Simplex	Scripps-Booth	G. M. C.
Cole	Pilot	Signal Truck	Abbott
Reo	McLaughlin Canada	Sandow Truck	White
Paige	Stearns-Knight	Sterling Truck	Deleo-Light
Saxon	Singer	Neteo Truck	Phianna
Stutz	National	Moreland Truck	Lincoln Truck
Chandler	Jackson	Republic Truck	Samson Tractor
Pathfinder	Dodge Brothers	Brockway Truck	Acme Truck
Westcott	Velie	Diamond T Truck	
	Chevrolet		

Accept No Plug Unless AC is Burnt Into the Porcelain

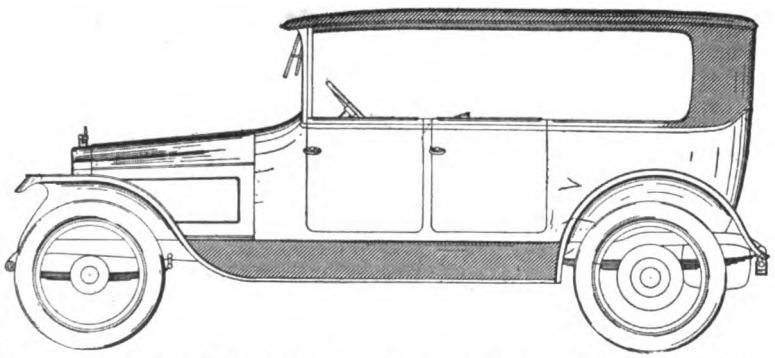
Sold Everywhere

No Greater Recommendation Can be Given a Spark Plug

Champion Ignition Co. Flint, Mich.

Individually Designed All-Weather Bodies

Springfield Type - Permanent Roof - Special Construction



Because the car owner's personality is best shown in an individually designed body—we give special attention to the customer's preference in design, in upholstery and in painting.

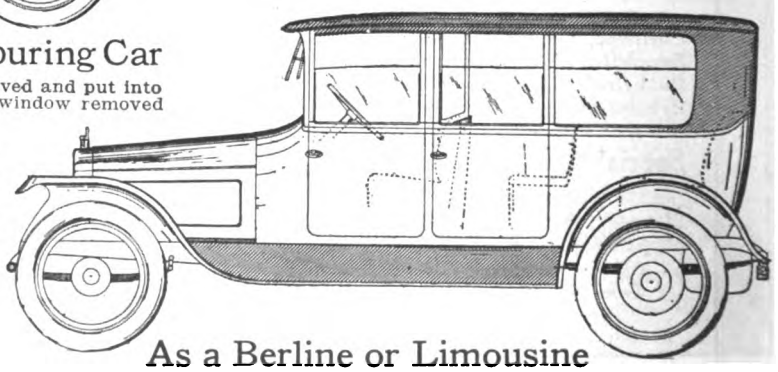
Immediate deliveries can be made from our stock of seven passenger four door bodies for most of the 1917 high grade cars.

Permanent Roof Type as an Open Touring Car

Door windows lowered into pockets. Rear side windows removed and put into pocket in body. Portable pillars carried in body. Division window removed

We submit plans and blueprints of specifications. Build bodies of any type for any chassis. Body will be shipped to owner or dealer or we will mount body on chassis in our factory.

Let us have your questions.



As a Berline or Limousine

Door windows adjustable to any height by regulators. Rear side windows can be lowered half way. Removable division window.

Goodman Auto Body Co., Inc.

1737 Broadway New York, N. Y.

Factory--211-215 West 19th Street

Digitized by Google





THIS SELLS BUMPERS

"The display stand certainly sells bumpers," writes an Ohio dealer. "I put it up in front, near the door, and in the five weeks I have had it there I have sold twice as many bumpers as in any five weeks before."

Gemco MILWAUKEE TRADE MARK

End Thrust Bumpers will almost sell themselves if they are displayed. Every car owner knows that it's cheaper to invest a few dollars in bumpers for the front and rear of his car than to buy a pair of new lamps and a fender or two when the inevitable smash comes. Gemco End Thrust Bumpers pay a good profit and bring car owners into the store to buy other supplies and accessories. Made to fit all cars, diamond or channel bars. Ask your jobber to quote you prices or terms or write to

Gemco Manufacturing Co. 756 So. Pierce Street Milwaukee, Wis.

Popular Automobile Accessories

ELCAR ELCAR

The Elcar at $845
Does Its Own Talking

Looks better than its price, and is just as good as it looks. A car of distinctive beauty, well designed, well built, well finished—a car in which quality speaks right out.

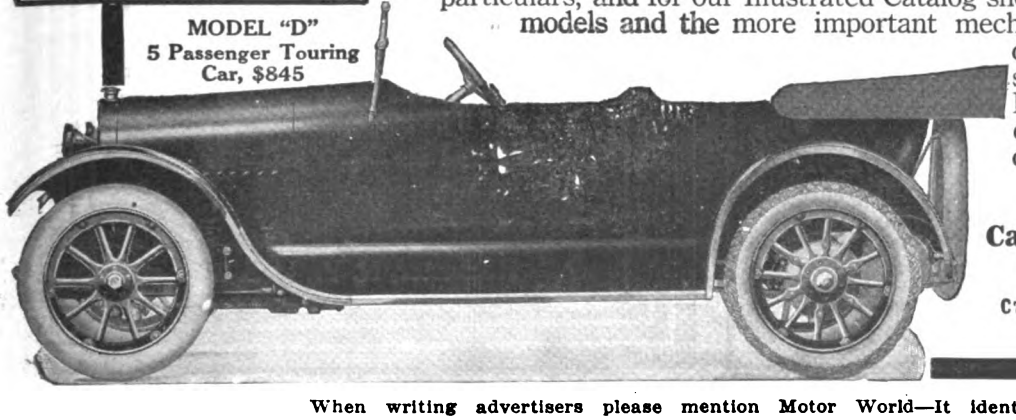
Three Models at One Price

Five Passenger Touring Car Four Passenger Touring-Roadster
Two Passenger Roadster

A Few Elcar Specifications

Wheel Base—As long as some cars selling up to $3,000 and more—115 in.
Motor—4-cylinder; long stroke; high speed; 34.7 h. p. at 1,800 r. p. m.
Fuel Supply—Stewart vacuum system.
Ignition—Delco automatic spark advance with manual control.
Starting and Lighting—Dyneto two-unit; double-bulb headlights; Willard storage battery.
Clutch—Dry multiple disk—seven plates, steel on Raybestos.
Rear Axle—Full-floating with roller bearings at each end of wheel hubs.
Differential—Spiral bevel driving gears, with roller main bearings and ball thrust bearings.
Brakes—Internal and external, two inches wide on 12-inch drums.

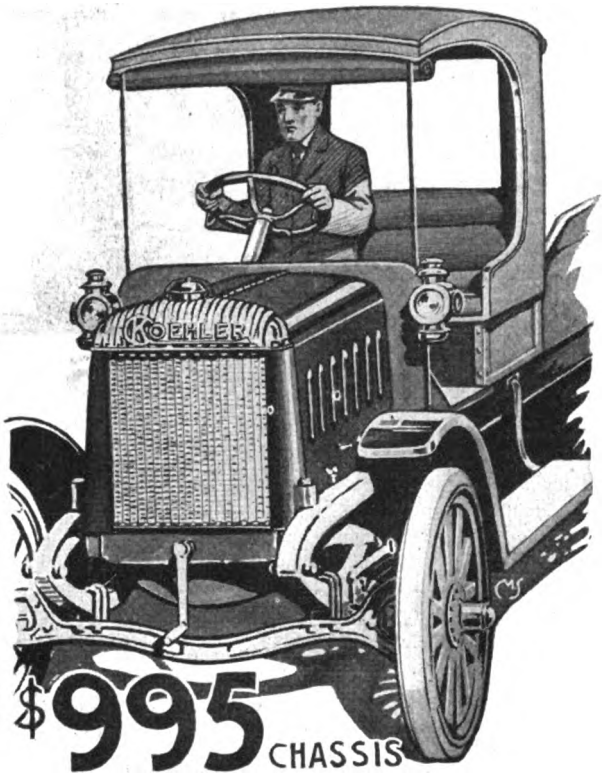
MODEL "D"
5 Passenger Touring Car, $845



Secure it for your territory We want to place our proposition before live dealers in territory not already assigned. Write us for particulars, and for our Illustrated Catalog showing all ELCAR models and the more important mechanical parts, and describing the construction of the ELCAR even down to its small details.

Elkhart Carriage & Motor Car Company
C773 Beardsley Avenue
Elkhart, Indiana

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Three Wise Men of the West

They all three landed on us the same week—H. A. Seller, head of the Motor Truck Sales Co., 456 McAllister St., San Francisco; H. G. Pendell from 437 So. Figueroa St., Los Angeles; and W. T. Herrick, of Waco, Texas.

They came thousands of miles across the continent separately but with a common purpose. Seller, who is one of the big truck dealers of the West, explained the situation clearly. "They'll buy a half million trucks on the Coast in the next few years," he said, "and I am out to get my share. That's why I've been studying the truck industry for weeks all through the East and Middle West. I've been to the factories and truck shows and I've talked to hundreds of truck owners. I have studied engines and hauling costs. I mean to give my customers the best truck that is built and it's got to be at the right price."

Pendell of Los Angeles, another big dealer, told the same story. Herrick of Waco has sold thousands of pleasure cars, but knows his future profits will come from trucks.

They examined the Koehler—examined it as a medical student dissects a guinea pig. There wasn't a bolt on it that they missed. They had it loaded with more than a ton and a quarter of scrap and tried it out on Newark hills.

They tested the Koehler over-head valve motor unmercifully.

KOEHLER 1¼ TON TRUCK

Over-Head Valves—Internal Gear Drive

Let Pendell complete the story. He said, "At last I've found a truck that is built for ordinary rough and tumble trucking. It isn't a locomotive and it isn't a cross between a cycle car and a dump cart. It isn't a pleasure car that has seen better days. There isn't a single pleasure car unit in it. That over-head valve motor is the greatest glutton for punishment that ever yanked a truck out of a mud hole. The whole outfit is built for *work*. It would sell fast at $200 more than you charge."

These three men will sell a half million dollars' worth of Koehler trucks. They had their pick of the entire field. Why did they choose the Koehler? Not because of heavy advertising—not because it's the lowest priced truck of equal capacity on the market—but because they were convinced that it was the best designed, most ruggedly built and most powerful truck that has been manufactured in this country. They knew it was a truck they could make money on because it would satisfy the rank and file of truck buyers. That is the way we secure most of our Koehler agents. They come to us—study the car—and sign up. They stick—and make money. Write for open territory.

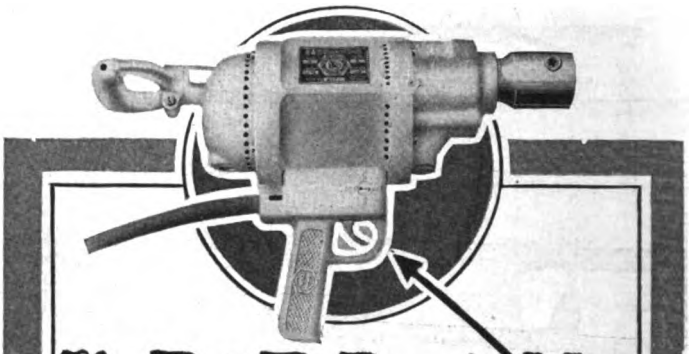
BRIEF SPECIFICATIONS:

MOTOR 3½ x 5, 35 H.P. 4-cyl., OVER-HEAD VALVES, long stroke, large three-bearing crank shaft. RADIATOR fin-head, built-up type, TRANSMISSION 3-speed selective, annular ball-bearings. DRIVE, shaft and double universals; INTERNAL GEAR REAR AXLE. CLUTCH, dry multiple disc. WHEEL BASE 129 inches.

Not a single pleasure car unit

H. J. KOEHLER MOTORS CORPORATION

Incorporated 1895 **NEWARK, N. J.**



The B & D Portable

The Drill with the Pistol Grip and the Trigger Switch

You can keep both hands on this drill, hold it steady all the time, right up to the time it stops. When it breaks through, you simply pull the trigger and that cuts off the current.

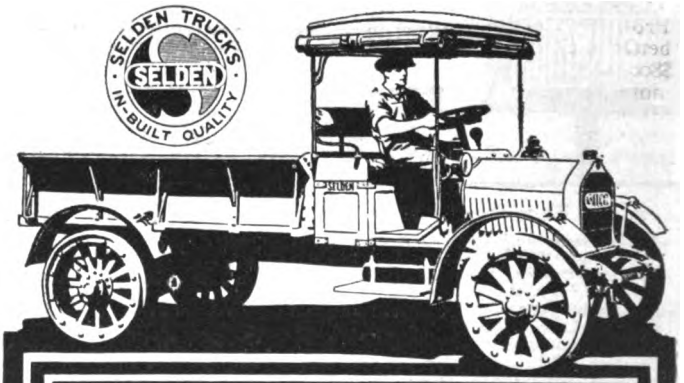
Universal motor—runs on any current.
Ball thrust bearing.
Chrome vanadium steel gears and forced draft cooling system.
Fully guaranteed.
No reaching for switch and letting go of drill, with chance of breaking the bit.
The most satisfactory drill your men can use.
Write for circular.

0—⅛. 0—¼. 0—⅝.

The Black & Decker Mfg. Co.

107 So. Calvert St., Baltimore, Md.

Canadian Distributors the *Northern Electric Company* LIMITED Montreal



Dealers!

The new Selden Truck Sales Proposition is different and more liberal than any you have ever had offered to you before.

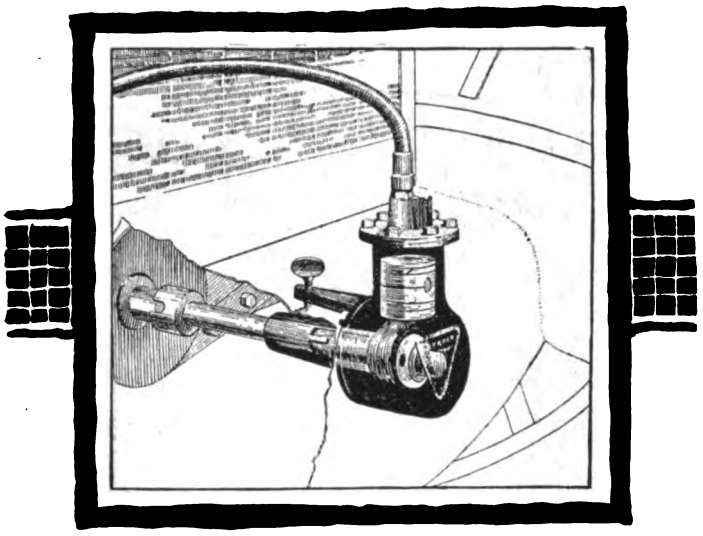
We firmly believe that every good dealer in this country would want to "sign up" by return mail if he knew what it is.

Write and find out—right now—for soon it will be too late.

Selden Truck Sales Co.

Rochester, N. Y., U. S. A.

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The Big Pumping Season Is Coming Be Ready For It

The big season for blowouts and punctures is almost here. Already your customers find signs of wear on last year's tires. They don't want to pump those tires by hand—and they won't if you sell them—

GEARLESS DETROIT CRANK-SHAFT TIRE PUMP

Pat. Aug. 25, 1915

960,000 cars are DETROIT Gearless Crank Shaft Tire Pump Prospects. Manufacturers have furnished them with nothing better than old-style hand pumps, and have sold them from $800 to $1300 to the class of people who willingly spend $10 more for DETROIT Crank Shaft Tire Pump comfort and service.

Engineers of some of the leaders of these prospects have designed them to use the DETROIT Gearless Crank Shaft Pump. It is their recommendation to owners.

The DETROIT Pump is *not a rubber diaphragm device.* On and off in a jiffy. Attaches to the end of the motor crank shaft. A big popular seller everywhere. *Liberal dealer discounts.* WRITE.

DETROIT ACCESSORIES CORP'N

520 HILLGER AVE., DETROIT, MICH.

Canadian Distributors: Walkerville Hardware Co., Walkerville, Ontario





Simple and Direct

Eclipse Shock Absorbers attract buyers because they are simple in construction, easily attached and effective in operation.

Ford owners can see at a glance how they work. They will like them because there are no parts to get out of order and no changes to make in his car.

The Right Principle

You can easily show your prospect the importance of the Eclipse attachment between the body and the axle, making their action **auxiliary to—but independent of the springs.**

A Good Proposition

Dealers:—Get in touch with us at once. We are offering you an article that has distinct advantages over more expensive and more complicated shock absorbers. We are showing our confidence in Eclipse Shock Absorbers by letting you sell them on a trial basis.

Tear off the coupon and mail it today.

Kanesteo Mfg. Co., Inc.

Canisteo, N. Y.

Kanesteo Mfg. Co., Inc.,
Canisteo, N. Y.

Gentlemen: Please send me information as to prices and discounts on Eclipse Shock Absorbers.

Dealer .....

Address .....

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Dealers!

You can absolutely guarantee

EBONITE

to be the best gear lubricant your customers ever used or they get their money back

We back you to the limit on this

Write for terms

BAYERSON OIL WORKS
ERIE, PENNA.

Imperial OXY-ACETYLENE EQUIPMENT

TO GARAGES

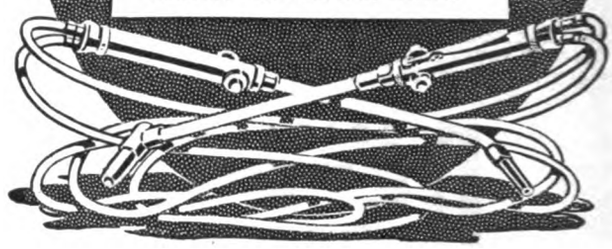
A PROFIT MAKER for your spring trade.

Makes possible a good line of repair work that you otherwise could not get.

Also Imperial Lead-Burning Outfits.

Write for Details and Prices

Imperial Brass Mfg. Co.
1221 W. Harrison St., Chicago



A Mere Flip of the Switch Gives You Control



A Dim, Mellow, Non-Glaring Light Whenever Required

VAN SICKLEN
COMBINATION HEADLIGHT DIMMER AND INTENSIFIER FOR FORD CARS

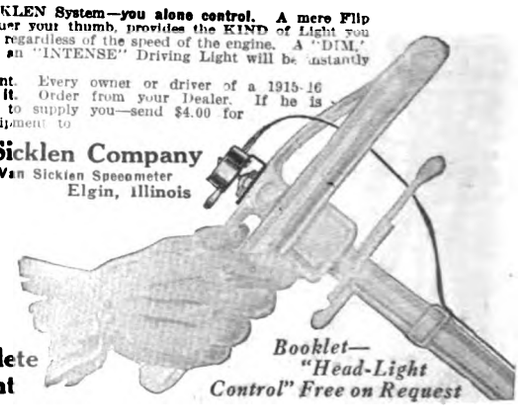
An Intense, Far-Reaching Driving Light at Any Speed

Headlight Control for your electrically lighted Ford Car can never be **positive** unless **this** control is where **you alone** can manipulate it. When the speed of the **engine** is left to increase or decrease the intensity of your headlights, you are courting annoyances and dangers that are **costly** and often **serious.**

By the VAN SICKLEN System—**you alone control.** A mere Flip of the Switch, under your thumb, provides the KIND of Light you want at all times, regardless of the speed of the engine. A "DIM," a "NORMAL" or an "INTENSE" Driving Light will be instantly available.

Get this equipment. Every owner or driver of a 1915-16 Ford Car **needs it.** Order from your Dealer. If he is not yet prepared to supply you—send $4.00 for the complete equipment to

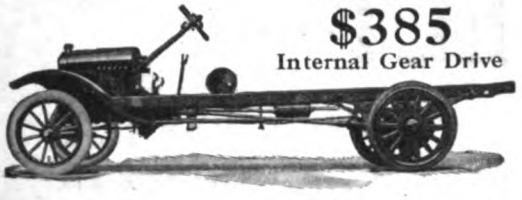
The Van Sicklen Company
Makers of the Van Sicklen Speedometer
15 Chicago St., Elgin, Illinois



Price $4
For Complete Equipment

Booklet—"Head-Light Control" Free on Request

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Price of Unit
$385
Internal Gear Drive

Kelley Convertible Truck Attachment Is An Established Success

Dealers and owners of KELLEY Convertible Truck Attachments everywhere agree on its high efficiency and low up-keep cost—its great capacity for work and sales.

Investigate the Internal Gear Drive of the KELLEY. It is standardized, complete, economical and *guaranteed*.

Some valuable territory still open for the right dealers

KELLEY CONVERTIBLE AUTO-TRUCK CO.

Factory, Joliet, Ill.
Executive Office, 332 S. Michigan Ave., Chicago

BRUSHES

for
Automobile Starting Motors
Lighting and Ignition Generators
Motor-Generator Sets
and Magnetos

We now supply most of the large manufacturers, our Automobile Brush Department producing more than 2,500,000 brushes annually.



By working in harmony with motor and generator manufacturers, as well as conducting constant laboratory experiments of our own, we have established a reputation for producing the right brushes for each class of apparatus.

Write for Copy of Catalogue No. 10, just out.

SPEER CARBON COMPANY
Motor and Generator Brushes, Battery Carbons, Carbon Electrodes and other carbon specialties.
ST. MARYS, PA. U. S. A.

THE SIOUX WAY

—is the New Way to Grind or Reface Valves and Valve Seats

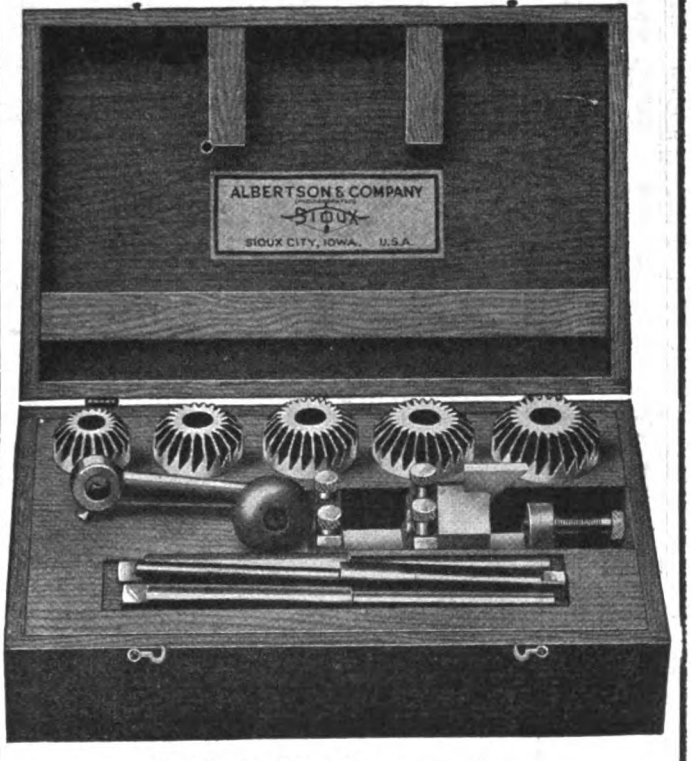
THE modern Sioux method is much easier, quicker and more profitable than the old way.

You can reface a valve or valve seat in about *one-twentieth* the time—and be sure of having it done right. The valve face will be even, smooth, at an accurate angle and perfectly centered. All this we *guarantee*.

It's all so simple that you don't have to put an expert mechanic on the job. There is no chance of shattering valve or spoiling valve seat with a "Sioux" tool.

Your customers will be so pleased with the work and the small price for which you can do it, that you will soon find yourself with a steady, paying business in this line. The price of a "Sioux" Valve Tool Set is so small that two jobs will pay for the outfit. You can get this full set, or the "Sioux" Refacing Tool or any of the other individual items from any live jobber.

Write for illustrated circular containing full description.



Pat. Febr. 17, 1914 Other patents pending

Sold by all live jobbers **Made only by**

Albertson & Co.

Sioux City **Iowa**

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Haywood's



Nationally Advertised

Tire Repair and Vulcanizing Service

In these days of high tire prices, the tire repair business is getting bigger and better than ever, as motorists learn the method of true tire economy. Why not cash in on this opportunity? Put in a Haywood Tire Repair Plant. Link up with a nationally advertised tire repair service. Six years of Haywood's advertising has standardized the Haywood method.

The Sign of the Man and Machine

—is the connecting link between the tire repair man and the automobile owner. It chains the established trade of hundreds of customers to your business. It connects your shop with a national tire repair service—a standardized service—a service that motorists know absolutely to be economical, practical and efficient.

The Haywood System

—is scientific—a true system of conservation of tires—a system that saves motorists thousands of dollars on tire bills. It means repairs that are lasting—vulcanizing that holds—repairs that are solid as the original tire itself, insurance to motorists of no regrets on the road.

Haywood's Tire Repairing and Vulcanizing Plants

The Haywood Plants are complete, all in one unit—are easily operated—no experience necessary. Here is your opportunity to make big money—to add hundreds of dollars in profits a year to your business. Occupies only a small part of your shop—can stand right out in the open where your customers can see it—a constant reminder to keep their tires repaired. Your shop equipped with a Haywood Plant is the motorist's logical haven for tire repairing. It completes your service—a service that customers like—a service that brings and holds business at big net profits.

Write for New Catalog

Use a letter, or post card or simply send the coupon below. This brings the big book of facts—tells all about tires and how to repair them—shows outfits in use—gives proof of successes—shows how we co-operate with plenty of advertising and plenty of help—how you link up with a national service. Book gives complete details. Write today. Don't delay.

The Haywood Tire & Equipment Co.
1042 N. Capitol Ave., Indianapolis, Ind.

Haywood Tire & Equipment Co.,
1042 N. Capitol Ave., Indianapolis, Ind.

Gentlemen: Please send me full particulars of your national service of tire repairing and complete catalog and information of Haywood Tire Repair Plans.

Name .....

Address .....

.....

FELT—

WASHERS
GASKETS
WICKS
STRIPS, ETC.

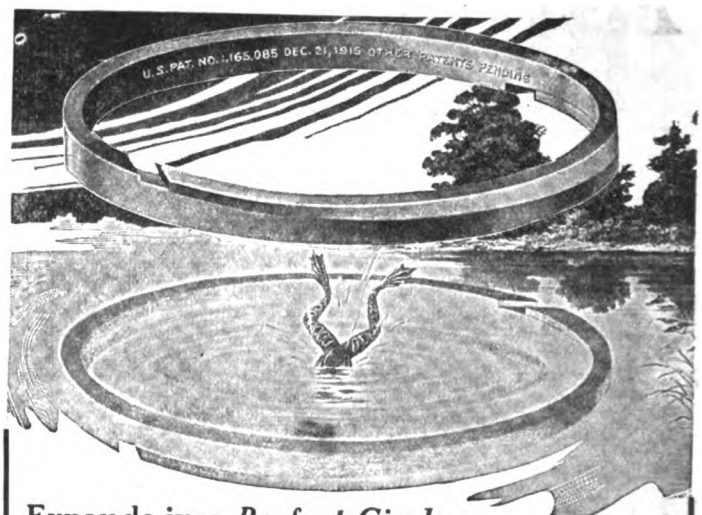
¶ A factory, equipped to best supply the special needs of the AUTOMOBILE TRADE.

¶ Put the Burden of Proof upon us—write today. There's conviction waiting for you!

ADVANCE FELT SPECIALTY & CUTTING CO.

328 South Jefferson Street, Chicago

Sales Offices
Kresge Bldg. Detroit
Fifth Ave. Bldg. New York City



Expands in a *Perfect Circle*

The Inland is absolutely GAS-TIGHT because it has no gap and its patented Spiral Cut causes it to expand in a perfect circle, making positive contact with the entire inner circumference of the cylinder. One width and thickness all around; therefore strongest and most durable. One-piece; therefore LOW-PRICED. Standard equipment for Stutz, Franklin, Hal 12, Apperson, Weidely motors, etc., and chosen for Army Aeroplanes.

Get 25% MORE power and mileage
by installing GAS-TIGHT, LOW-PRICED Inlands. Ninety days' trial —money back guarantee. Write for our deal to dealers.

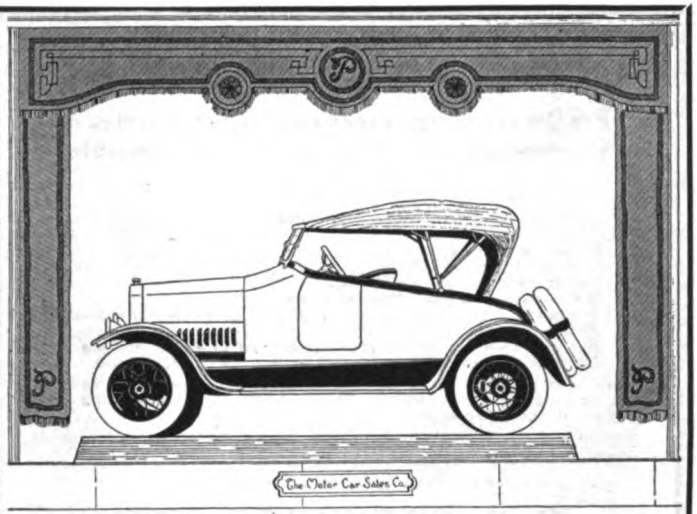
INLAND MACHINE WORKS
815 Mound St., St. Louis, Mo., U. S. A.

Write for Booklet



INLAND
1 PIECE PISTON RING

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"Dress Up" Your Windows

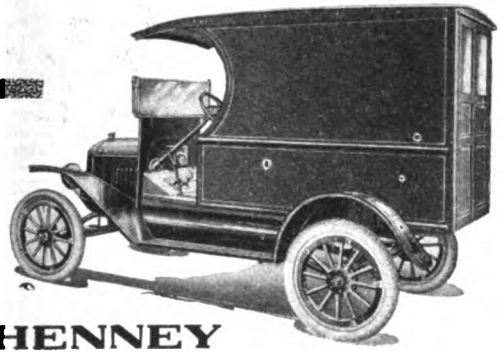


"CLASSIQUE" VALANCES on your show windows create sales by making a distinction between a SALES ROOM and the ordinary storage room.

WRITE TODAY for catalogue of window decorations, or send layout of windows for special sketch.

The CLEVELAND Decorative Works
1120 Prospect Ave.
Dept. M. CLEVELAND, O.

"Easy" Money and "Good" Money



HENNEY

Commercial Bodies for Ford Cars

meet an urgent need in every community. Sell one and it's a traveling, trade-pulling advertisement for the man who buys it and for the dealer who sold it. Dealers who have taken on this line find that it brings an immediate increase in trade.

QUALITY CONSTRUCTION

Attractive appearance, durability and satisfied customers.
Our many branches insure quick service and helpful co-operation.
Write for liberal agency proposition and illustrated catalog showing full line of Henney Commercial Bodies.

Some good territory open. Write today. Address factory or nearest branch.

MOLINE PLOW CO.
HENNEY BUGGY BRANCH
Factory: Freeport, Ill. Sales Office: Moline, Ill.

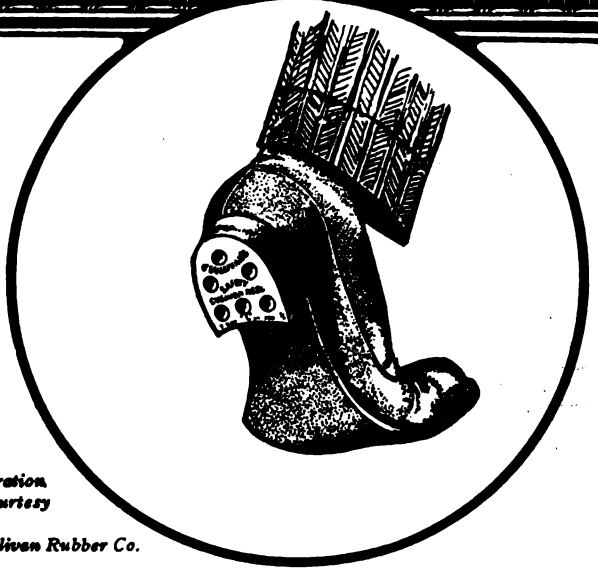


Illustration by Courtesy of O'Sullivan Rubber Co.

Thousands of W & C Prospects Wear Rubber Heels

Ten million people wear O'Sullivan's Rubber Heels. Other millions wear rubber heels of other manufacture. Every one of them knows the value of shock absorbers. Thousands of them own Ford cars. They are live prospects for—

W & C

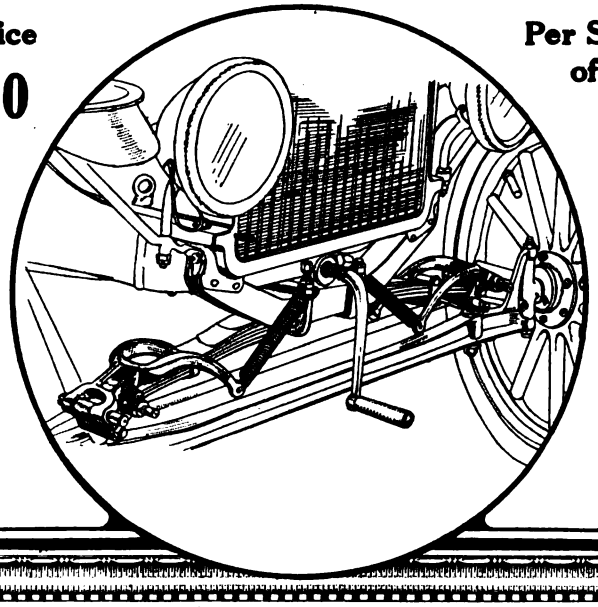
The Original Double Arm Shock Absorber for Ford Cars

W & C Shock Absorbers make as much difference in the riding qualities of Ford cars as rubber heels make in the walking qualities of ordinary shoes. They're easier than ever to sell to rubber heel users. Over 100,000 sets now in use.

Write for exclusive territory offer.

P. H. WEBBER CO.
HOOPESTON, ILLINOIS

Price $10 Per Set of 4



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Suggest to Your Customers

Invincible Seat Covers

—and make more sales.
—for when you say "Invincible" you have said it all.

With a half century of dependability behind every product of ours we urge the discriminating dealer to join us in providing the motorist with accessories of maximum appearance and service.

Back Up Invincible Products with a Binding Guarantee

—and we are ready to make that warrant good. We use the highest grade materials, with a remarkably wide assortment of fabrics at your disposal; the most expert workmanship, as is to be expected from leaders in this industry; the most modern in style and fit, for every effort is devoted to suiting the customers' desire for modishness in their motors.

This means trustworthy products, durability and car-owner-satisfaction. Communicate with us for a bigger season's business on—

Seat Covers, Dust Boots, Tire Covers, Curtain Bags, Curtain Lights, Auto Robes, Wash Aprons

These accessories sell easiest when you are able to say "Invincible" to the buyer. As a profit maker and a good-will builder there's an attractive proposition at your command. Ask about it now.

The Peters & Herron Dash Co.
77 Gift Street Columbus, Ohio

The EDGERTON MOTOR TESTER

Positively Eliminates the Uncertainties of Guesswork in Locating Motor Troubles

It is a Tool that Sells on Sight because it

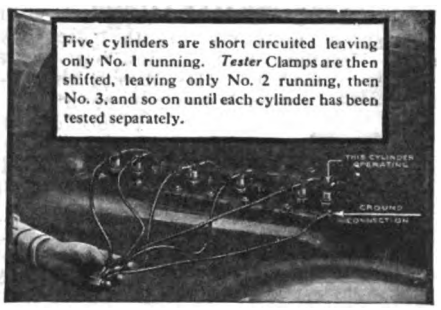
Locates instantly missing explosions
Weak cylinders
Knocking bearings
Leaking valves or pistons
Faulty valve or ignition timing
Makes carburetor adjustments easier
Diagnoses the exact working condition of each cylinder separately
Shows if motor is adjusted properly for running conditions
Burns carbon off the exhaust valve seats in a few minutes.
It is the greatest time and labor saving device of its kind

Made in two models for any number of cylinders; the twelve cylinder can be used for any motor of twelve cylinders or less and the same is true of the other sizes.

Everyone from the car owner to the expert factory adjuster needs it and should get it.

Write for Literature or Order Today.

R. G. EDGERTON & CO.
SUFFOLK, VIRGINIA



Patents Pending

PRICES

Special
4 cyl...$2.00
6 cyl... 2.50
8 cyl... 3.25
12 cyl... 4.75

De Luxe
4 or 6 cyl. ...$5.00
8 cyl... 6.75
12 cyl... 9.50

Specify number of cylinders and model desired when ordering. Both models give same results, but the De Luxe is made heavier and will stand more abuse.



"What am I Feeding my Engine?"

Carbon, the greatest detriment to engine efficiency, may be minimized by the proper choice of lubricants. For instance—

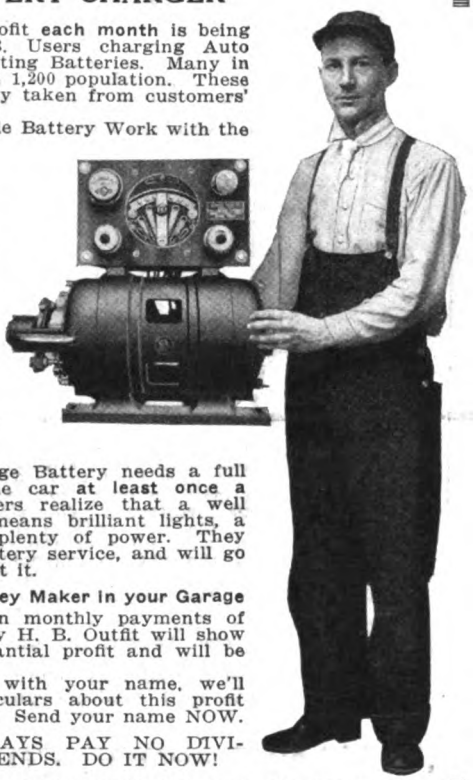
SUPREME AUTO OIL

being manufactured from Asphalt Base Crude, leaves less carbon, as it contains no paraffine to gum and stick. At the same time it affords perfect lubrication.

GULF REFINING COMPANY
The Largest Independent Refining Company in the World
GENERAL SALES OFFICES: PITTSBURGH, PA.
DISTRICT SALES OFFICES:
Boston New York Philadelphia Atlanta New Orleans Houston

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"MY BIGGEST MONEY MAKER —H. B. BATTERY CHARGER"



$30.00 to $60.00 profit each month is being cleared by H. B. Users charging Auto Starting and Lighting Batteries. Many in towns of less than 1,200 population. These figures are actually taken from customers' letters.

Any one can handle Battery Work with the H. B. Set, no special skill or knowledge being required. **One to six Auto batteries can be charged at the same time.** Current costs approximately 15c. per battery. You get from 75c. to $1.50 for each battery charged. Figure your profits when you can charge six batteries each run of the generator.

Every Auto Storage Battery needs a full charge outside the car **at least once a month.** Car owners realize that a well charged battery means brilliant lights, a quick start, and plenty of power. They are asking for battery service, and will go where they can get it.

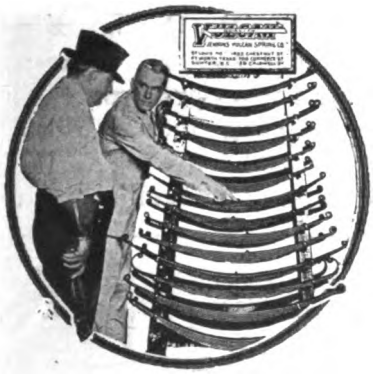
$10 places this Money Maker in your Garage the balance in ten monthly payments of $14.00 each. Every H. B. Outfit will show you a most substantial profit and will be paying for itself.

Send in this ad with your name, we'll gladly send particulars about this profit making H. B. Set. Send your name NOW.

DELAYS PAY NO DIVIDENDS. DO IT NOW!

HOBART BROTHERS COMPANY
Box 44 Troy, Ohio

You Need Not Keep A Customer Waiting



When he comes in for a new spring you have it for him right on the rack.

If by any chance you should not have it on the rack you can wire us and get it at once. We have constantly on hand springs to fit 90% of all American cars.

But if he is one of your regular customers you will have it right on the rack, for we give you the rack free and fit it out with springs most likely to be called for by your regular trade.

VULCAN QUALITY VULCAN

This is part of our DEALER CO-OPERATION plan. Write for particulars. They will interest you.

JENKINS VULCAN SPRING CO.

1402 Chestnut St., St. Louis, Mo.

708 Commerce St., Fort Worth, Tex.

29 Caldwell St., Sumter, S. C.

KEYSTONE SHOCK ABSORBER

THE BEST IS NONE TOO GOOD

Hundreds of dealers have lost excellent custom by selling inferior materials. Discriminating people want only the best and are willing to pay for it. Goods outliving memory of price are those sought by all.

KEYSTONE SHOCK ABSORBERS

are built of the highest quality carbon and vanadium steels and drop forgings. In years there has never been cause for replacement of parts.

"Those things called dear are, when justly estimated, the cheapest; they are attended with much less profit to the builder than those everybody calls cheap."

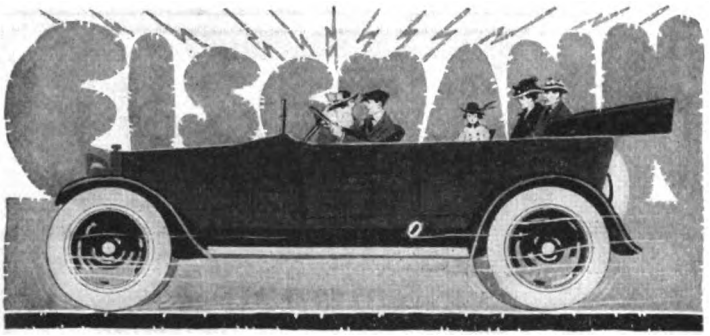
—Ruskin

The famous author, in these words, summed up Keystone Shock Absorbers. They retail for $20 a set. Dealers in quality materials should write us at once.

Steel City Electric Co.
1207-1219 Columbus Ave. Pittsburgh, Pa.



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Back of Every Good Motor

—is good ignition, a spark so hot and strong that the motor throbs with power, the kind of spark you always get from

THE

EISEMANN MAGNETO

The intensely hot Eisemann spark is an all-the-time spark—powerful—dependable. Even if the mixture is rich or lean, whether the motor is racing or barely turning over, you can count on your Eisemann ignition to give you full explosions.

Why have 117 Manufacturers of Pleasure Cars, Trucks, Tractors, etc., adopted the Eisemann Magneto as standard equipment? Ask them!

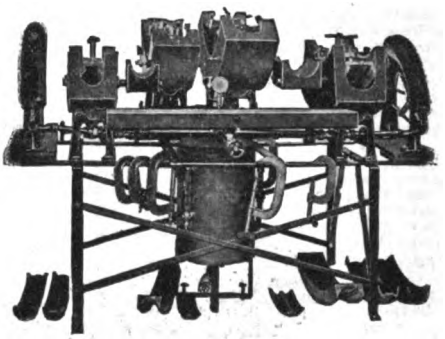


THE EISEMANN MAGNETO CO.

Sales and General Offices:
32-33rd St., Brooklyn, N. Y.

Chicago, Ill., 910 So. Michigan Ave.
Detroit, Mich., 802 Woodward Ave.

Vulcanizing With a Vanderpool Vulcanizer Brings Big Profits



3 Cavity Combination Vanderpool Vulcanizer

Here is an exceptional opportunity for Garages as well as Vulcanizing Companies to secure a vulcanizer that will turn out high-grade work at a small cost. The fuel saved alone, will pay for the machine in a short time—then you will "cash in" on your investment. This plant, the Vanderpool Vulcanizer, is meeting with enthusiastic approval of hundreds of satisfied users all over the country. Unsolicited testimonials from the various companies now using the "Vanderpool" testify to the dependability, efficiency and economy of this "Vulcanizing Wonder." One man writes that the first month's profits paid for the plant. No experience needed—we teach you how. It occupies very little floor space, and "once bought, you will never have to buy again."

Send in this ad with your name and we will mail catalogue and prices.

VANDERPOOL COMPANY
Box 82 Springfield, Ohio

TORIT 6300

TORIT 6300

Oxy-Acetylene Welding Apparatus

$65

REGARDLESS of the price you pay when buying welding equipment, you have the right to expect a plant that will operate efficiently for a long period of years, that is accurately and strongly constructed to stand the use and abuse of continuous service. And above all a plant that will handle any work which comes to your shop.

TORIT Equipment will not handicap you. Competitive tests have proven this.

YOUR jobber can give you complete information or write to the manufacturers direct, but

DEMAND TORIT 6300 EQUIPMENT

The Evleth-Lindsay Company, Inc.
St. Paul, Minn.

TORIT 6300

TORIT 6300

The Hal Twelve

SMOOTH POWER

Seven-Passenger Touring Car or Roadster, $2600. Limousine or Town Car (Leon Rubay bodies), $4500. Touring Sedan, $3500. Cleveland prices.

Hal Motor Car Company, Cleveland, Ohio

Ever Good

TRADE MARK

Double Spring BUMPER



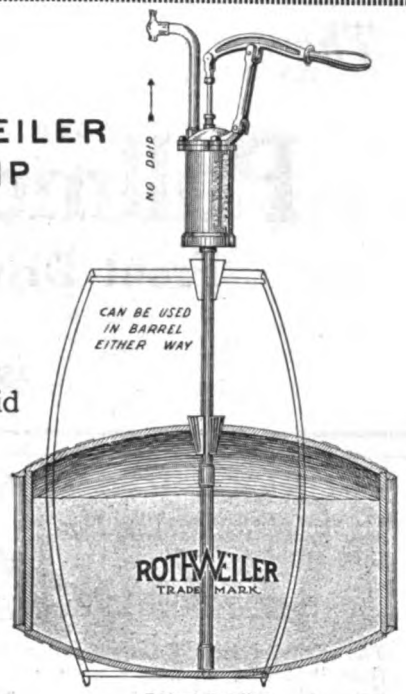
RUST-PROOF
DAMAGE-PROOF

Emil Grossman M'f'g Corp'n
Bush Terminal Bldg. No. 20 Brooklyn, N. Y.

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ROTHWEILER PUMP

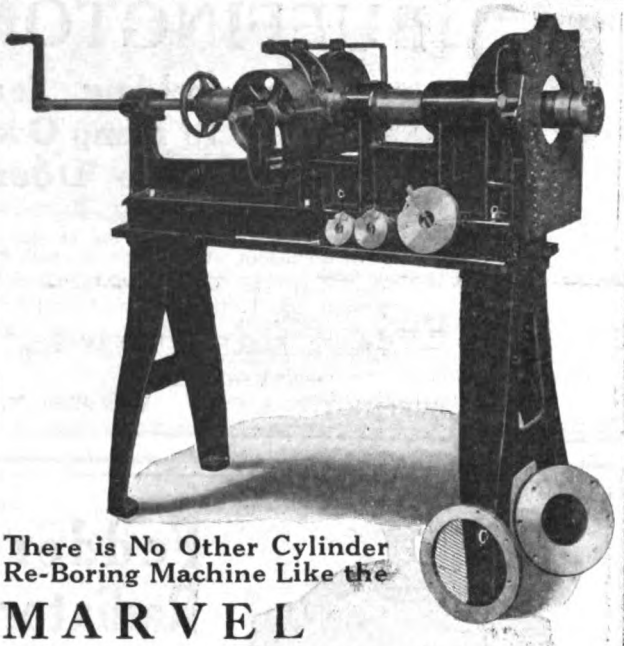
Price
$6.50
Delivery
Charges Paid



Patent Pending

The above method is the easiest, quickest, cleanest and cheapest way of getting all the oil, gasolene, turpentine, light paint, etc., out of a wooden barrel or iron drum.

ROTHWEILER & CO., SEATTLE, WN.



There is No Other Cylinder Re-Boring Machine Like the

MARVEL

Without question the most efficient, rapid, easy to operate, simple, and inexpensive device ever offered for the purpose of trueing automobile cylinders.

Should be in every repair shop.

Pays for itself in a remarkably short time.

Often increases the repair business as much as 100% in two or three months after installation.

Will handle any type of cylinder block from one to twelve cylinders, of from three to eight inches in diameter.

For full particulars, price and terms, write the

Marvel Machinery Company, 610 Boston Bldg., Minneapolis, Minn.
Department No. 9



THE MANLEY "EVERY WAY" ENGINE STAND

supports the motor perfectly, while allowing the workman to reach every portion of it with ease and accuracy.

The "Every Way" can be adjusted to every position in a circle—100 positions if desired—but the three most convenient are the Horizontal Position for working on valve mechanism and generally around the engine; the 45-degree Position (shown in cut) for cleaning carbon, grinding in valves, etc.; and the Inverted Position for taking up crankshaft, connecting rod, bearings, etc.

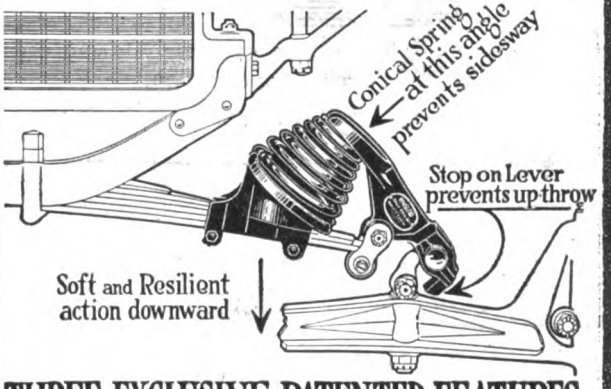
In each position the engine is locked rigidly by two side braces. The "Every Way" supports the engine solidly. It will never become shaky, and should last a lifetime without repairs.

For the Factory motor assembly department no other stand has been brought out that can be compared to the "Every Way" for efficiency and convenience.

The United Engine & Mfg. Co.
"Pioneers in Garage Equipment"
Hanover, Penn.

THE Manley SHOP AND GARAGE EQUIPMENT

HASSLER Shock Absorber
For FORD Cars



THREE EXCLUSIVE PATENTED FEATURES

"Recognized as the Best"
— 100000 FORD OWNERS RECOMMEND IT —
WRITE FOR DEALERS TRIAL SET PROPOSITION

Robert H. Hassler, Inc.
Indianapolis, Ind.

$15 for a Set of Four

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BUFFINGTON

Folding Seat to Hang Over Auto Doors

"Handy as a pocket in a shirt"

Can be folded up and put out of the way when not needed. Cannot mar the upholstery or finish.

Metal parts very light and strong, black Japanned. Can be furnished in oxidized copper or nickeled finish if desired.

Seats are three-ply, ½-inch veneer upholstered in imitation leather, either black or maroon.

Manufactured by

C. A. BUFFINGTON & CO., Berkshire, N. Y.

The

Pullmore

Front Drive

is Coming



Fedders Radiators

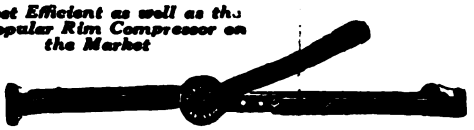
Fedders quality is largely the result of 18 years' specializing in radiator production.

Fedders Manufacturing Co.

Buffalo New York

EUREKA RIM COMPRESSOR

The Most Efficient as well as the Most Popular Rim Compressor on the Market



The Eureka Rim Compressor will remove or replace tires in less than half a minute. Can be used for any detachable rim of the transverse split type.

It is attached to the rim without the use of clamps or screws. It is quickly applied and operated. It is impossible for it to injure the rims, casings, or tubes, in any way.

The Eureka is strongly made. Guaranteed free from imperfections in material and workmanship. Price, $3.00.

EUREKA RIM COMPRESSOR, Inc., Addison, N. Y.

Inter-State

SIX BODY STYLES

$850 to $1325

Write to-day for illustrated catalogue and territory information.

Complete line of export models for foreign markets. Prices on application.

Inter-State Motor Co. Muncie, Ind.

PACO

The Original Racing Body for Fords

The designers and manufacturers of PACO Racing bodies have had one aim in view ever since they first appeared on the market: to build a racing body that will give to a Ford all of the class and distinction possible and at the same time withstand the wear that such a body will receive.

PRICES
Model 21, $146
Model 22, 105

Design patented Jan. 23, 1917



Our 1917 Improvements

have made the bodies more attractive, more easily mounted, easier to drive and more durable. Let us send you our new descriptive literature. Get your PACO in time to get a full season's use out of it during 1917.

Paco Manufacturing Co.

Dept. 10, Galesburg, Ill.



Miles Cheaper

Users Report Records of

8,000
10,000
12,000
15,000
Miles

Settle the MILEAGE PROBLEM— Use

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NEW PROCESS
ACCURATELY CUT METAL GEARS and Bailey Non Skid Non Stall Differential

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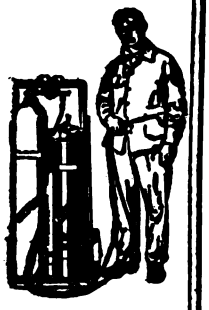
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NEW PROCESS GEAR CORPORATION
SYRACUSE, N. Y.

Add to Garage Profits by Oxy-Acetylene Welding

savings made, please your patrons and pay good substantial profits.

PREST-O-LITE
Dissolved Acetylene
(Ready-made carbide gas)

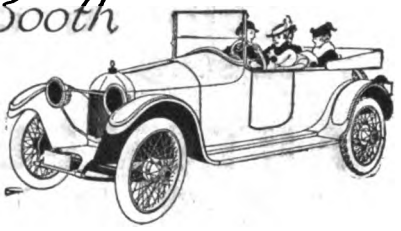


adds to the efficiency and usefulness of any good welding equipment. We furnish thoroughly high-grade welding apparatus for $75.00 (Canada, $100.00). The average user will also need gas cylinders at an additional cost, and about $10.00 worth of welding supplies. Truck and special equipment for cutting operations at extra cost.

Send for details of Prest-O-Lite Service for Oxy-Acetylene Welding.

THE PREST-O-LITE CO., Inc.
The World's Largest Makers of Dissolved Acetylene
U. S., Main Office & Factory 287 Speedway Indianapolis, Ind.
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Scripps-Booth



In both the four-cylinder and the eight-cylinder models, Scripps-Booth combines the height of motor luxury with light weight, in a way never before achieved. The resulting comfort and economy have given Scripps-Booth a unique position with a highly desirable clientèle.

Four-cylinder Roadster	$ 935
Eight-cylinder Coupé	1450
Eight-cylinder Four-Pass.	1285
Eight-cylinder Town Car	2575

Scripps-Booth Company
Detroit, Mich

Backus Utility Auto Lock
Protects Car and Contents



The Backus Lock with its mechanical fingers prevents the theft of robes, garments, suitcases and articles left in the car.

Locks in any position—indestructible. Every lock has different key combinations. Our liberal trade discount yields a good profit. Send for literature.

Backus Novelty Company
Dept. M.
Smethport, Pa.

20th Century Farm Horse
$125.00
Fits Any Ford



Write for Literature

LIBERAL DEALER'S PROPOSITION

Farm Tractor Co., Fond du Lac, Wis.

THE G. L. W. SPRING OILER
Takes the Place of Expensive Shock Absorbers

Absolutely prevents spring breakage, rust, squeaks and crystallization. Adds 30% to tire life. Any spring replaced free that breaks after G. L. W. Oilers have been in place and in use 3 days. Be sure to state width of front and rear springs and make of car when ordering. Two oilers for each spring. Only 20c. each. Last forever. *Order of your dealer or send direct.*

Price **20c.** Each



419,000 in Use Today
Liberal Dealer Offer
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Mosler VESUVIUS Plug



PRICE $1.00 AT ALL DEALERS
Stone Insulator.
Absolutely gas-tight.
Has no equal for Speed and Power.
Sizes and threads for all motors.
New schedule of trade prices.

A.R. Mosler & Co. New York, U.S.A.

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Quality in Motor Trucks

It has been our endeavor to create a commercial vehicle that would excel first of all in the quality of the material used, and, second, in the economy of its operation.

Our reputation for producing the most lasting truck is recognized by our many users.

We offer for your convenience, the following sizes:

1½-ton 3½-ton
2-ton 5-ton
7-ton

Hurlburt Motor Truck Company
133rd St. and Harlem River New York, N. Y.

PATENTED

DUBOIS POWER RINGS TRADE MARK

Put More Power In Your Engine!

No pins in the DuBois Power Ring. Gas cannot get by—neither will it carbonize.

DuBois Piston Ring Co., Inc.
Dept. R,
Albany, N. Y., U. S. A.

The DuBois Power Piston Ring will take the trouble "kick" out and put the power "kick" in.

Write or wire for representation in your territory.

THE LAIDLAW CO., Inc.
16 W. 60th St. New York City

AUTOMOBILE FABRICS

A Fabric for Every Purpose for Open, Closed, and Convertible Bodies

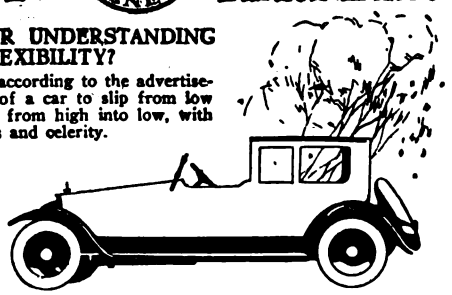


OWEN MAGNETIC

WHAT IS YOUR UNDERSTANDING OF FLEXIBILITY?

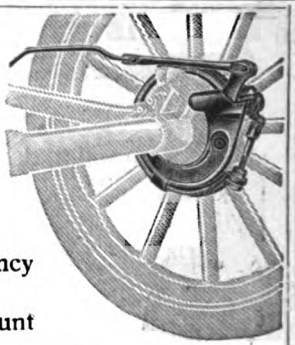
Flexibility means (according to the advertisements) the ability of a car to slip from low speed into high, or from high into low, with extreme smoothness and celerity.

Flexibility—approached in other cars—is actually attained in the Owen-Magnetic.



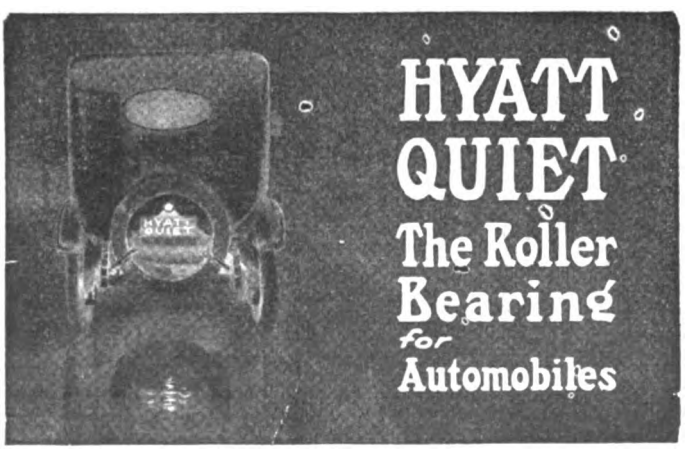
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Cleveland, Ohio
Manufacturers of
OWEN MAGNETIC MOTOR CARS
Salesrooms— New York Boston Philadelphia Chicago

Dealers are Making Big Money Selling



our "Improved Emergency Brake" for Fords.
Write at once for big discount and original selling plan.

L. A. LEATHERS CO.
BROOKVILLE, PA.



ABC

NUMBER 459

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This Certifies that Motor World is a member of this Audit Bureau of Circulations and is entitled to all the privileges thereof, subject to the By-Laws and Regulations of said Association now made or to be made. It is a condition of membership that this certificate be surrendered when publication ceases to be a member.

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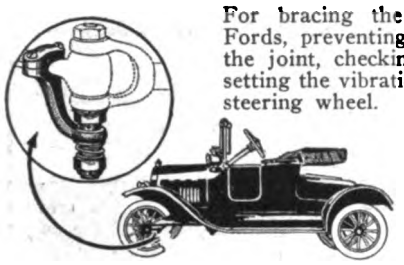
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King Spindle Joint Anti-Rattler



For bracing the spindle joints of Fords, preventing wear and tear on the joint, checking rattling and off-setting the vibration which affects the steering wheel.

Price $1.00

The device is attached directly without taking the spindle joint apart. It cannot get out of order. It is a great trouble saver.

KING MFG. CO., BROOKLINE, MASS.

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The Six of Advanced Construction

UNIQUE VALUE **$1250** RAPID SELLER

Detroiter Motor Car Co., Detroit, Mich.

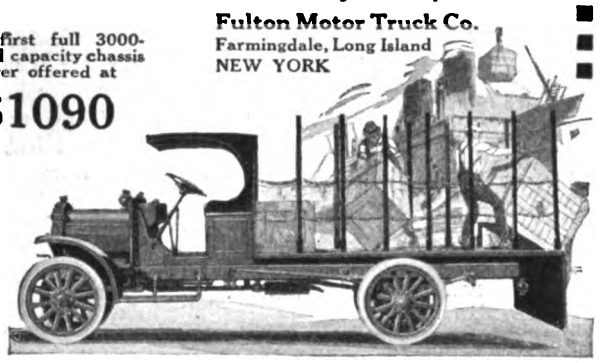
THE FULTON TRUCK

Dealers—*Write for territory still open*

The first full 3000-pound capacity chassis ever offered at

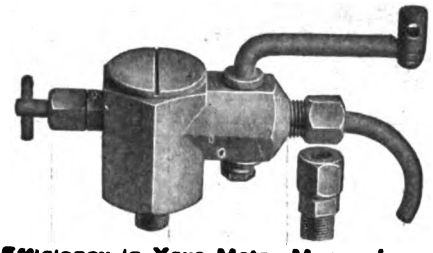
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A complete socket wrench set in itself. Used like a bit and brace. Holds like a vise.
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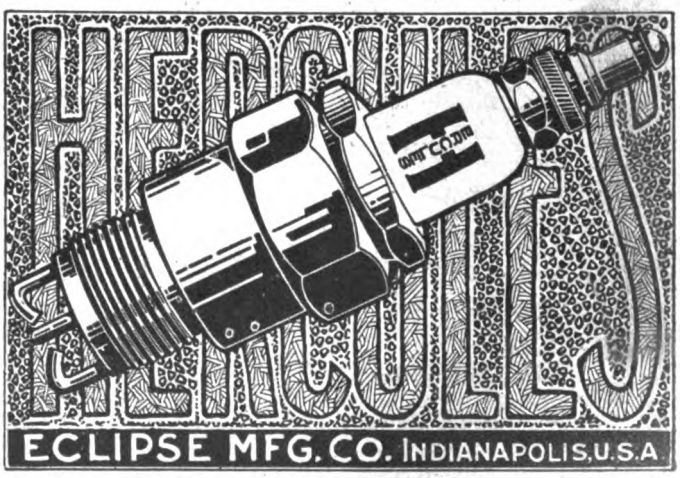
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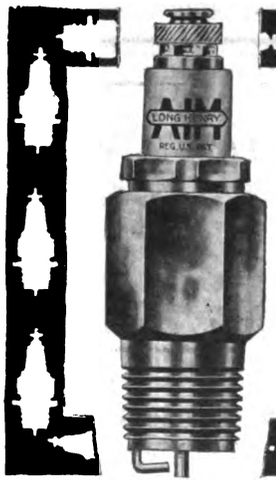
Piece No.	Outside Diameter	Inside Diameter	Length	Approximate Weight
A	1	½	12	2
B	1¼	⅝	12	3½
C	1½	¾	12	5
D	1¾	⅞	12	7
E	2	1	12	8½
F	2¼	1¼	12	10
G	2½	1½	12	11½
H	2¾	1¾	12	12½
I	3	2	12	13½
J	3¼	2¼	12	15½
K	3½	2½	12	17
L	4	3	12	21
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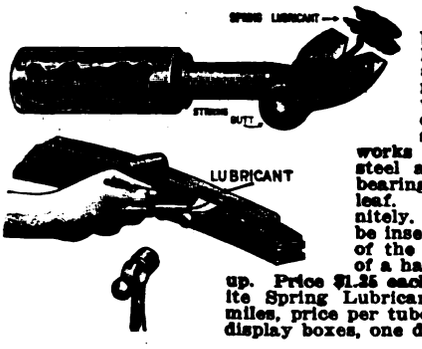


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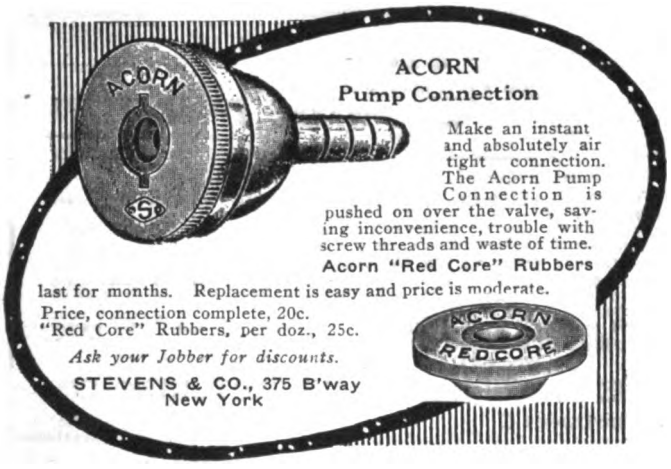


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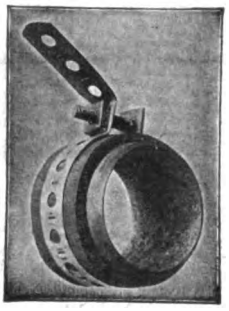


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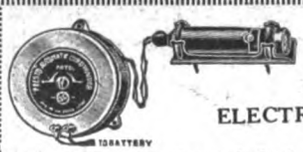
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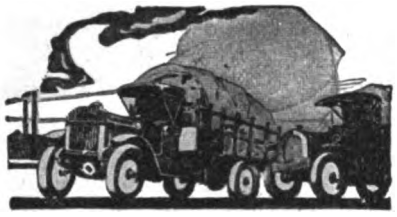
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Everybody needs

Natural Vision

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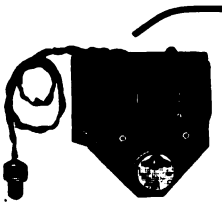


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Every time you get a motorist to try DUTCH BRAND Products a permanent customer is assured.

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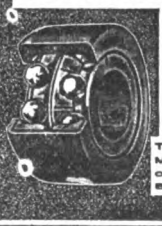
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FEATHERWEIGHT PISTONS

made of aluminum alloy—lighter than aluminum—stronger than cast iron. Ford set, complete with rings and pins for $18.



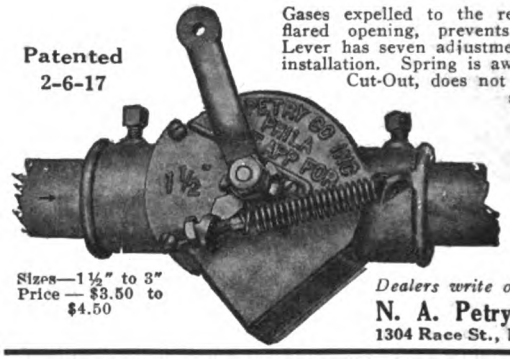
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Patented 2-6-17

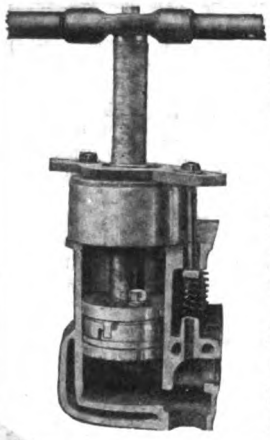


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is adjustable and will rebore practically all makes of

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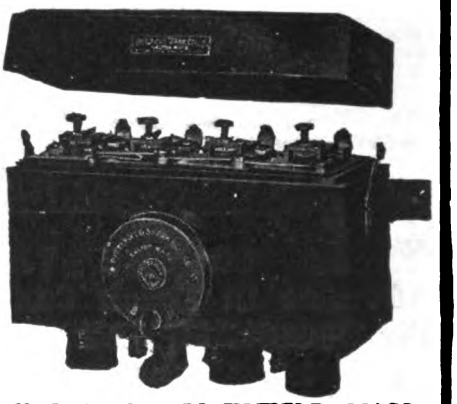
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Malleable iron handle—Forged Steel Jaw.
Sizes 6 to 14 in. (opens ¼ x 2 in.) Price per doz., $8.00 to $21.

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31 x 3½	8.50	2.50	37 x 4	18.25	3.75
32 x 3½	9.00	2.40	34 x 4½	16.00	3.85
34 x 3½	9.15	2.45	35 x 4½	16.50	3.90
38 x 3½	10.75	2.65	36 x 4½	16.80	4.00
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31 x 4	11.75	2.75	35 x 5	16.40	4.45
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32 x 3½	5.25	1.40	34 x 4½	7.90	1.75
34 x 3½	5.50	1.50	35 x 4½	7.90	1.80
36 x 3½	6.25	1.50	36 x 4½	8.00	1.85
30 x 4	6.50	1.50	37 x 4½	9.25	1.90
31 x 4	6.25	1.55	35 x 5	8.00	1.90
32 x 4	7.00	1.55	36 x 5	9.10	2.00
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Bulletin No. 5

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Interstate	Crawford	Everett 30
Flanders 20	E.M.F. 30	Mitchell
Cole 30	Winton 6 cyl.	Velie
Palmer Singer	Regal	Krit
Matheson Six	Chalmers	Oldsmobile
Locomobile	Rambler	Paige
Peerless	Jackson	Gleason
Lexington	Ford N.R.S.	Cadillac
Black Crow	Royal Tourist	Garford
Studebaker	Case	Reo
Glide	Auburn	Adams Truck
Detroiter	Stevens	Stearns
Cutting	Parry	Brush
Briscoe	Marathon	Oakland
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Moon	Franklin	Pope, Hartford
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Overland 38, 42, 53	Flanders 20—Warren 30
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Reo 1910—Empire 20	Glide—Stoddard-Dayton
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Kissel 6—Matheson
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34x3½	6 00	1.60	36x4½	10.00	1.85
31x4	6.75	1.65	37x4½	9.00	1.90
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Special Machinery Designed and Built.
ESTIMATES GIVEN

DOVER-McDEVITT
80 Clifford St. Prov., R. I.

New Ideas

in automobile parts and accessories manufactured and distributed through our own selling organization. Let us save you trouble and expense.

Higginson-Gibson Mfg. Co.
Boston, Mass.

SERVICE PARTS
GEARS—SHAFTS

We manufacture and distribute the following parts: Transmission Gears, Countershafts, Slide Shafts, Differential Gears, Axle Shafts, Piston Pins, etc.

SERVICE GEAR & MACHINE CO.
Reading, Pa.

General Machine Works

Contract Manufacturers of

Gears, Machine Parts, Machine Assembling, Jigs, Fixtures and Tools

We want to quote prices. Send Blue-prints

GENERAL MACHINE WORKS
York, Pa.

Advertise in the Contract Work Department for Results

Beau Brummel Bodies For Ford Chassis

DEALERS—We want to show you what a profitable line the Universal Car Equipment Co. can offer you. Write us today for full information. If you want to handle an exclusive territory proposition we will help you get the business.

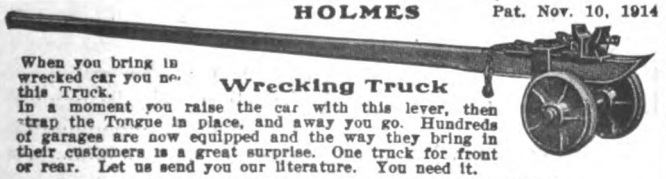
UNIVERSAL CAR EQUIPMENT CO.
1306 BELLEVUE AVE. DETROIT, MICH.

CROWN FENDERS

Dealers Write for Special Prices
On Crown Fenders for Ford Cars

CHICAGO AUTOMOBILE SUPPLY HOUSE
1349-51-53 So. Michigan Ave. Chicago, Ill.

HOLMES Pat. Nov. 10, 1914



When you bring in wrecked car you need this Truck.

Wrecking Truck

In a moment you raise the car with this lever, then strap the Tongue in place, and away you go. Hundreds of garages are now equipped and the way they bring in their customers is a great surprise. One truck for front or rear. Let us send you our literature. You need it.

ROBERT HOLMES & BROS., Danville, Illinois

Stop the Spring Breakage



It's poor policy to risk repeating the annoyance of a broken or weak spring—and the delay—by saving only a very little in buying or selling a *cheaper* spring instead of a "NEW ERA *BETTER* SPRING." Don't replace a broken spring with one no better. Wise dealers sell only the best. New Era "BETTER" Springs are the oldest and largest used line for replacement—at same price as from car factories. Made for all cars. GUARANTEED one year against breakage or sagging, graphited between leaves for two years' lubrication. Write for complete lists, discounts or state requirements and class of business.

New Era Spring & Specialty Co.
879 Woodward Ave., Detroit, Michigan

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Removing Wrist Pin, Wrist Pin Bushing, etc.

WORTH A DOZEN OTHER TOOLS

You can use this tool all day every day in the garage or repair shop. Working on principle of Universal Chuck, it has a range of 1 3/16" to 17" diameter. Can be used either with 2 or 3 jaws. Three sets of jaws furnished with each puller. Turning handle expands or contracts jaws.

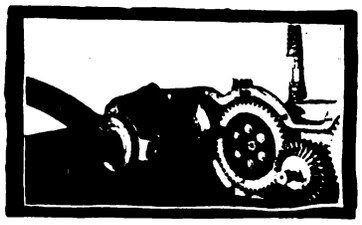
IN THE GARAGE

it is a veritable life-saver when there's lots to do and little time to do it. It is a time-saver and a labor-saver.



COLLISON'S
UNIVERSAL PULLER
(Patented)

Strong and well made, it is never out of order, and is absolutely guaranteed to give entire satisfaction or money is refunded.



With assistance of Lathe Dog Removing Magneto Gear.

IT WILL—

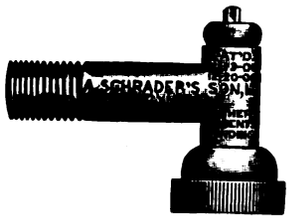
—remove wheels, jackshaft gear, cardan joint, magneto coupling or gear wrist pin —straighten frames, spring axles, steering spindles. Assemble clutch, remove or replace clutch bushings, and a hundred other things.

Price complete $20.
25 per cent Discount to Dealers and Garages

GEO. A. COLLISON
Burlington, Vermont

Ask You Jobber

Tire Pumping And Air Testing Made Easy.



MOST of your customers know that it is death to tires to run them insufficiently inflated. A great many of them however, neglect to test their air pressure because this operation until now has been tedious and time consuming.

You will be doing them a favor if you will bring to their attention the fact that with a **SCHRADER UNIVERSAL PUMP CONNECTION** this hitherto complicated operation has become both easy and agreeable.

The **SCHRADER UNIVERSAL PUMP CONNECTION** retails in the U. S. A. for thirty-five cents and you should have no difficulty whatever in selling as many of them as you have customers. It will also help you to sell gauges to those of your customers who until now have been deterred from testing their air pressure by thought of the labor and loss of time involved.

A. SCHRADER'S SON, INC.

783-803 Atlantic Ave. Brooklyn, N. Y.

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Britton Drain Cock



HIGH VALUE LOW COST
IT'S NEW

It consists of two inseparable parts—a conical valve seat and screw stem.

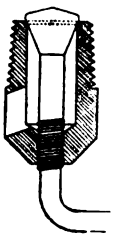
It is small in size and of compact and solid construction—does not get out of order.

It cannot become leaky with wear but always makes a tight closure.

The opening and closing of the valve stem prevent the outlet from becoming obstructed by carbon or sediment.

The Britton Drain Cock sells at an extremely low price.

Write to us about them—TODAY.



See April 5th issue re Britton Priming Cups.

Peter A. Frasse & Co., Inc.
417-421 Canal Street
New York City

Another Spot Light Success—





Pittsburgh Dry Battery
SPOT LIGHT

A spot light that opens up for you a big new field. It gives owners of TRUCKS, PLEASURE CARS not equipped with a lighting system, and horse-drawn vehicles the advantages of an electric light producing a strong beam with extended thrust.

Think how many you could sell right away! An eight-inch parabolic reflector in combination with a powerful focusing lense does the trick. Price $5.00 with bracket. Order a sample today.

A Splendid Motor Boat Light, $6.00 with Deck Stand

Pittsburgh Electric Specialties Co.
Pittsburgh, Pa.

There's a Pittsburgh Spot Light for Every Purpose

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It's easy to sell. Every dealer knows the rapidly increasing demand for this handy and inexpensive method of overcoming tire trouble. Every tire owner needs and wants one of these. No car is sold supplied with a tire saving device.

SHALER

Tire Repair Kits

For Motorists to Carry in Their Tool Boxes

Each sale gives you a liberal profit on the kit itself and besides gives you a continuous permanent profit on the sale of repair material and supplies that the motorist must buy from time to time for use on the road.

Increased tire prices increase every motorist's need for a Shaler Tire Repair Kit to reduce tire expense. Some dealer is going to make the sales. That dealer can be YOU.

The Shaler is advertised regularly throughout the season in the Saturday Evening Post and more than fifty other magazines. Motor car owners know the Shaler and call for it by name.



Write on Your Letterhead for Catalog and Dealer's Prices

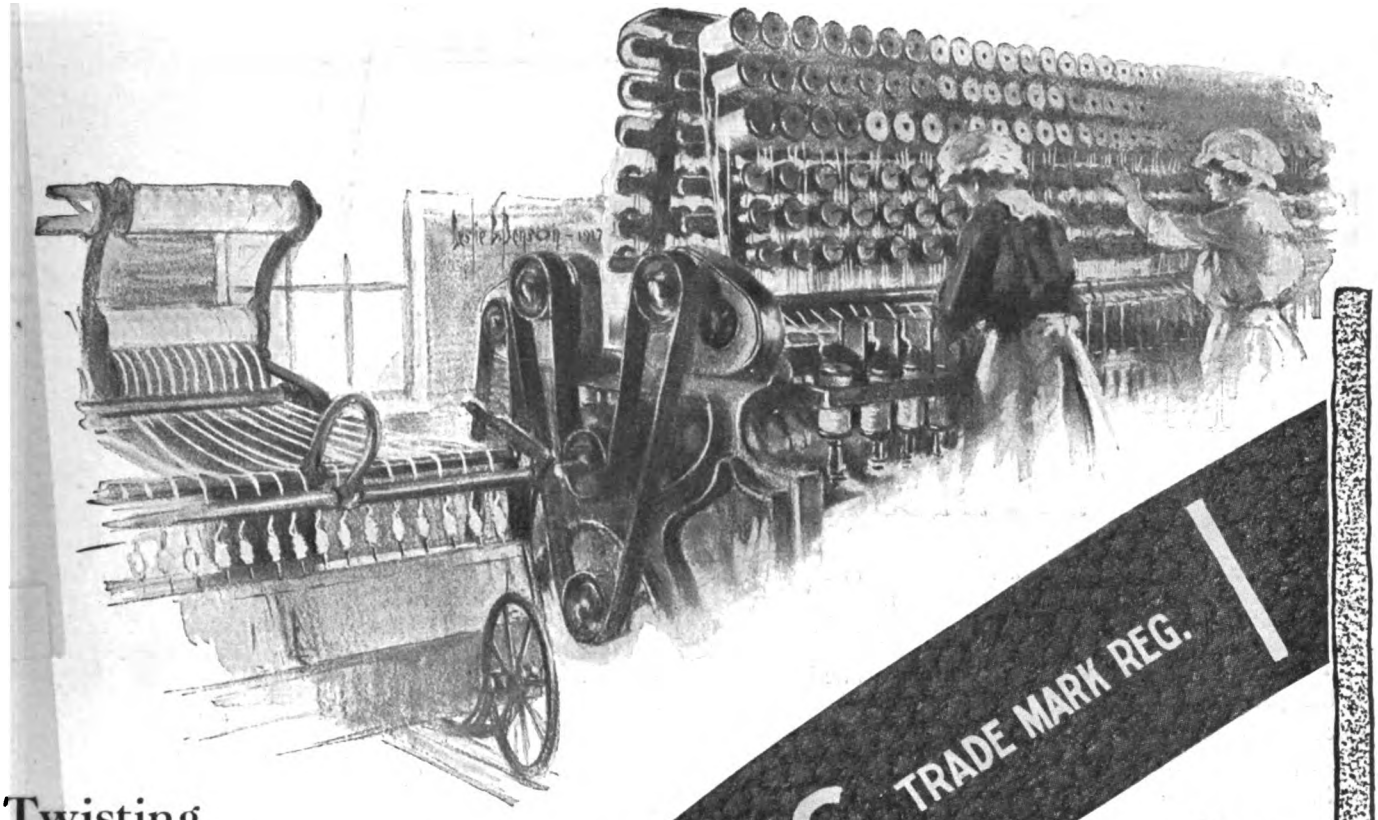
Write today for complete catalog of Shaler Tire Repair Kits—Dealers' discounts and full information about Dealer's Helps that we furnish, including Counter Stands—Posters—Wall Hangers—Window Displays—Booklets—Circulars—Signs and Window Cards.

C. A. SHALER COMPANY

122 Fourth Street Waupun, Wisconsin

Oldest and Largest Manufacturers of a Complete Line of Vulcanizers for Motorists and Repair Shops

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Twisting Asbestos Yarn and Winding with Brass Wire

MULTIBESTOS TRADE MARK REG.

One quality of Multibestos which distinguishes it above all other brake lining materials is the closeness of its weave. This feature is made possible by giving the yarn a sufficient tensile strength. First the asbestos is carded and twisted. Later it is twisted again on what are called Mule Spinners.

When this process is completed the yarn has all of the strength which can possibly be given to any pure asbestos material. But this is not strength enough. Still a further process is necessary and so we interwind the asbestos with brass wires.

The result of this twisting and interwinding is a material of tough firmness—absolutely heat proof. It is now ready for the severe strain of the high speed looms which weave it into Multibestos.

Other processes in the evolution of Multibestos will be described in future advertisements in this paper.

STANDARD WOVEN FABRIC COMPANY

WALPOLE, MASS.

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$1150 F. o. b. Racine
Mitchell Junior—a 40-h. p. Six
120-inch Wheelbase

Mitchell
SIXES

$1460 F. o. b. Racine
7-Passenger—48 Horsepower
127-inch Wheelbase

Mitchell Junior—$1150

Trebles the Mitchell Field

Here are some of the new attractions in the Mitchell line, to users and to dealers:

Two popular sizes—
8 styles of bodies—
31 extra features—
24 per cent added luxury—
100 per cent over-strength—
Over doubled output—
$1,000,000 in advertising.

The new size—Mitchell Junior—gives a roomy and powerful 5-passenger car—120-inch wheelbase—40 horsepower motor. And it opens an enormous new field to the Mitchells.

The eight body styles—all built in our plant—enable you to meet any idea in bodies.

The 31 extra features are attractions most of which all other cars omit.

The added luxury gives the Mitchell a distinction. And the savings made in our new body plant pay it all.

The over-strength — first announced this year—means a doubled margin of safety.

The larger output—2½ times last year's—places the Mitchell near the top in fine-car production.

The enormous advertising campaign—following a $700,000 campaign last year—will make the Mitchells the most talked-about cars in America.

The Extra Values

The Mitchell prestige is based on extra values. These are paid for by factory efficiency, due to John W. Bate. They show the results of efficiency in a concrete, resistless form.

This entire plant was built and equipped to build this one type economically. Millions of dollars have been invested, under John W. Bate, to this end.

Our new body plant this year completes all these efforts. Now 98 per cent of the Mitchell car is built by us under efficiency methods. The result shows in these extra values.

Every month we send out some 50 million advertisements to tell these facts to users. They have already trebled the Mitchell demand. They are bound to make Mitchells the dominant factor in the field of high-grade cars.

We invite possible dealers of the right calibre to investigate these facts.

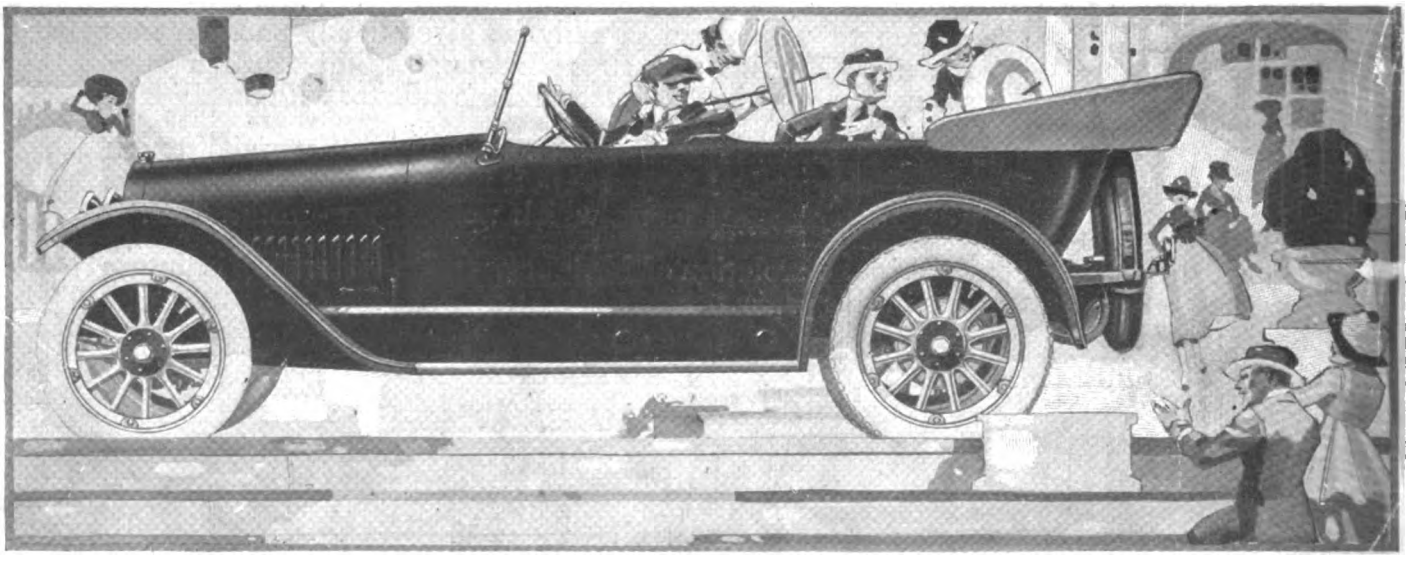
MITCHELL MOTORS COMPANY, Inc
Racine, Wis., U. S. A.

TWO SIZES

Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase. A high-speed, economical, 48-horsepower motor. Disappearing extra seats and 31 extra features included.
Price $1460, f. o. b. Racine

Mitchell Junior a 5-passenger Six on similar lines with 120-inch wheelbase. A 40-horsepower motor—¼-inch smaller bore than larger Mitchell.
Price $1150, f. o. b. Racine

Also all styles of enclosed and convertible bodies. Also demountable tops.



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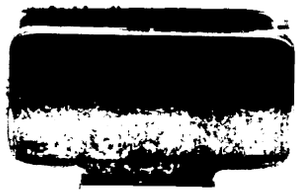
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